

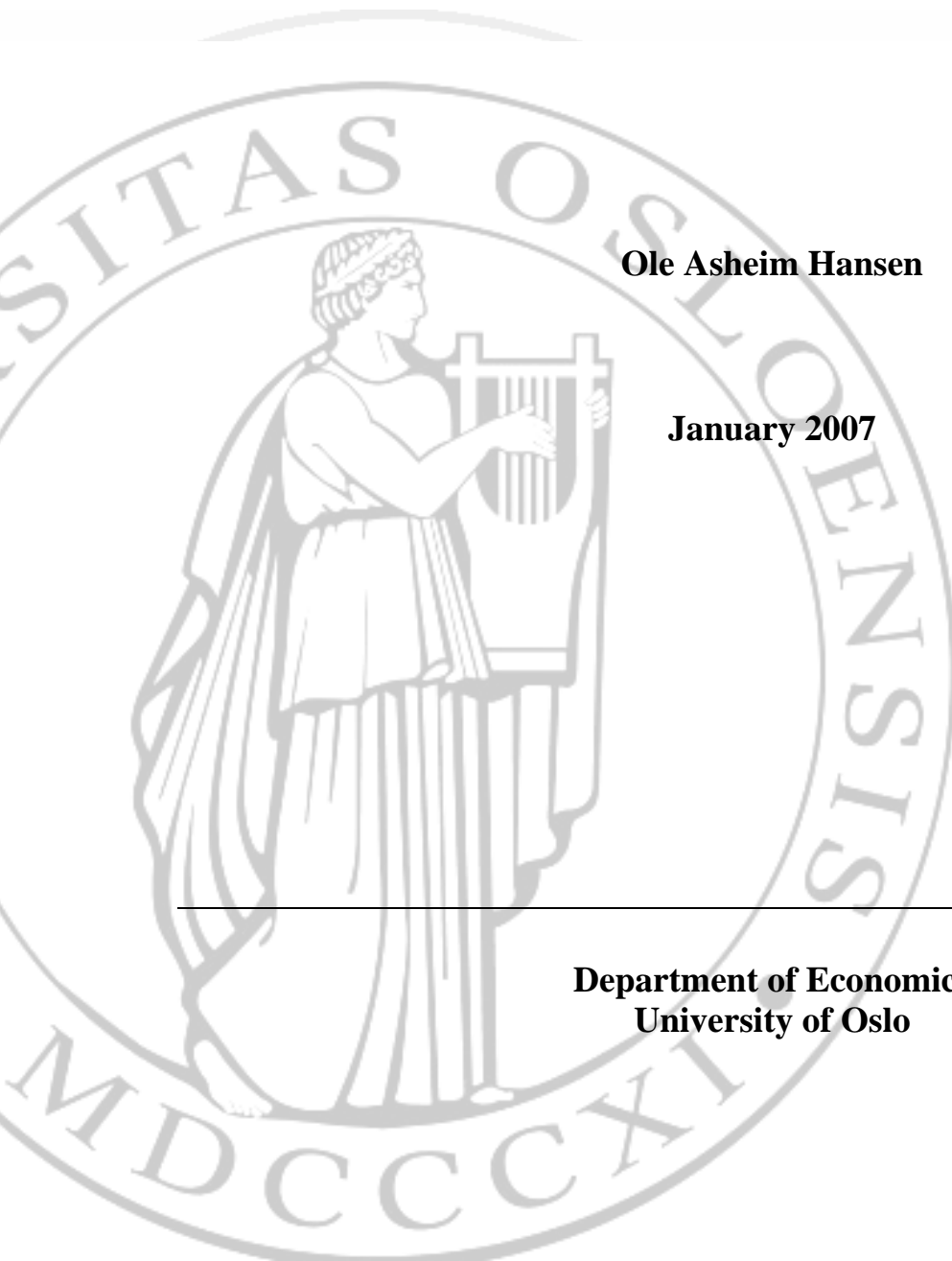
Vertical Relations in Automotive Distribution

*Consequences of the Motor Vehicle Block Exemption Regulation (EC) No
1400/2002*

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Preface

How do firms react when the rules of the market change? Using economic theory to analyze a change in competition policy proved to be an interesting choice for my master thesis. Several distinct economic effects could be found in the change in the Block Exemption Regulation for the automotive industry in 2002.

I would like to thank my supervisor Christian Riis for his guidance when determining the scope of the thesis and when I specified and analyzed the model. I would also like to thank John Fiskvik and Bilforlaget for supplying information and data material concerning the Norwegian market. This was very helpful for getting insights in the different aspects of the industry.

Oslo, January 28, 2007

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1. Introduction

The idea of this thesis is to analyze the consequences of the new laws regulating vertical relations in automotive retailing. The automotive industry has its own set of competition laws regulating vertical relations, called the Motor Vehicle Block Exemption. The name meaning that the distribution of motor vehicles is exempted as a block from the general European competition policy. The regulation covers the European Economic Area, i.e. The European Union, Norway, Liechtenstein and Iceland¹.

The automotive industry is a large and important industry in Europe. The top manufacturers are some of the largest firms in the world and of high importance to the domestic industries. Certain aspects have for a long time characterized the distribution of cars in Norway and more generally Europe. The up-stream market is more concentrated and relative stronger than the down-stream market. A large majority of the dealers is independent retailers, i.e. not owned by the manufacturers. The brand aspects of the industry are strong; there are distinct differentiated brands with names, logos and attributes well known to most consumers. Cars are some of the most complex and important consumer products available. Many consumers are dependent on cars and if they malfunction it may have disastrous consequences.

Because of the importance of the industry; The European Commission has for a long time recognized that the automotive industry requires its own set of competition rules. The Commission changed the Block Exemption in 2002 because they were of the opinion that the old Block Exemption from 1995 was outdated. The 1995 regulation had for example no rules regulating sales on the Internet².

The scope for the thesis is hence to first discuss the new Block Exemption compared to the old, determine the effects and then analyzing them. The Block Exemption also regulates the supply of spare parts and after sale services, but my focus will entirely be on the distribution of new passenger cars. I will first discuss the main effects in a general context and then build a model to analyze them in a vertical framework. I will try to give some answers to the following questions:

¹ EC Current Rules and New Rules

² EC No 1475/95

- Why do we have economic regulation in general and why does motor vehicle distribution have its own regulation?
- Which vertical restraints were affected by changes made in the regulation with the new Block Exemption?
- What are the effects normally associated with these vertical restraints?
- How are the vertical relations between suppliers and dealers in the automotive industry affected by the regulatory changes?

In Chapter 2 I will give a brief characterization of the industry. The focus will be on the main aspects, such as market concentration and demand. I will also see if the Norwegian market has any special attributes compared to the rest of Europe.

Chapter 3 consists of three parts. In the first part I discuss theories explaining the existence of competition policy. The motivation for this is that it is also important to have in mind why a set of regulation exists when discussing its consequences. I will discuss vertical relations generally in the second part. The Block Exemption concerns vertical relations and a general discussion of this felt necessary before discussing the Block Exemption in detail. The main part of the chapter will be a detailed discussion of the important changes in the new Block Exemption compared to the old and which forms of vertical restraints that are affected.

I will give a discussion of the two important vertical restraints found in Chapter 3, exclusive dealing and exclusive territories, in Chapter 4. I will discuss the important aspects that are normally associated with these vertical restraints and how different settings affect the effects of them.

The main model will be found in Chapter 5. The model consists of two producers selling close substitutes and competing in prices. The idea is to observe how the possibility to use different vertical restraints affects the producers' incentives to use independent retailers. The model is based on several existing papers analyzing vertical relations.³ I will show that the possibility to use two-part tariffs is necessary for vertical separation to be a dominant strategy. If franchise-fee is possible then nonexclusive dealing will remove the gain that the producers get from using independent retailers, but will not alone give the producers

³ Bonanno and Vickers 1988, Lin 1990, Rey and Stiglitz 1995

incentives to integrate vertically. I will also show that nonexclusive dealing only leads to lower prices if the producers may use franchise-fees.

The conclusion is found in Chapter 6. Here I will sum up the effects the new Block Exemption has and give some remarks on possible developments in the Norwegian market.

2. Market Overview

Cars are expensive and complex consumer goods. Production of cars requires huge fixed cost and entry into the manufacturer segment is therefore rare. Entry to the Norwegian market was made from Japanese producers⁴ beginning in the 1960's and later in the 1990's by Korean brands⁵. In Europe, the automotive industry contributes to 3% of Europe's GDP and 7% of the employment in manufacturing sector⁶. Europe is also by far the largest market for cars. In 2004 42% of all passenger cars in the world were sold in Europe followed by 19% in the USA and 11% in Japan⁷.

2.1 Europe

London Economics (2006) calculated the market share of different car manufacturers in 12 European Union countries (EU-12⁸)

Table 2.1: Main car manufacturers in the European market. Source: London Economics (2006: 26).

<i>Manufacturer</i>	<i>Popular Makes</i>	<i>Market share</i>
Volkswagen AG	VW, Audi, Skoda, Seat	18 %
PSA Peugeot Citroën	Peugeot, Citroën	16 %
General Motors Corporation	Opel, Saab	16 %
Renault S.A.	Renault	10 %
Ford Motor Company	Ford, Volvo	10 %

There has been a consolidation trend in the industry in recent years, probably because the producers want to exploit economies of scope and scale. An example may be Volvo, which was bought by Ford in 1999⁹. Besides the consolidation it is common that manufacturers are cooperating in production and owning shares in each other companies. Examples may be the

⁴ Volla 2003

⁵ Larsen 2004

⁶ CARS21 2006: 7

⁷ London Economics 2006: 9

⁸ Denmark, Germany, Spain, Estonia, France, Hungary, Italy, the Netherlands, Poland, Portugal, Sweden and the UK

⁹ Ford Website A

Renault-Nissan alliance¹⁰ and Ford who has an ownership of 33.4 percentage of the Japanese brand Mazda¹¹.

I will make a clear distinction between brands and makes: A *make* is a specific car model, while a *brand* is the set of different models from one supplier. Hence Volkswagen and Audi are two different makes, but the same brand since they come from the same supplier.

2.2 Norway

This thesis will mainly concern the situation in Norway and some clarifying is necessary with respect to the relationship between producers and importers before I discuss the market situation in detail. This relationship may be and is organized in several different ways. An importer may be fully or partly owned by the producer or independent, he may sell just one or more of the producers' makes and he may sell makes from other producers. The reasons behind the different types of relationships may of course vary from case to case.

An example is PSA which produces the two makes Peugeot and Citroën. The Norwegian importer of the Citroën make is Citroën Norge AS and is owned by PSA. Peugeot is however imported by a different firm, Bertel O. Steen (BOS). BOS is a privately owned importer who in addition is importing makes from other producers, e.g. Mercedes-Benz. The reason for the different organization of the import of the two brands is most likely that Peugeot did not buy Citroën before in 1974-1976¹² and the brands already had well established importers at that time. There may hence be a difference between the market share of the make, the producer and the importer.

The statistics for the Norwegian market used in this chapter are mainly from *Opplysningsrådet for Veitrafikken*¹³ and are for passenger cars. Many importers also import types of other vehicles, but the market shares are calculated on the basis of passenger cars only.

¹⁰ Renault Website

¹¹ Ford Website B

¹² PSA Website

¹³ OFV Website

Table 2.2: Market shares in Norway for makes, 2000 and 2004. Source: OFV

<i>Year 2000</i>			<i>Year 2004</i>		
Make	Quantity	Percentage	Make	Quantity	Percentage
Volkswagen	13783	14,20 %	Toyota	17400	15,00 %
Toyota	12588	12,90 %	Volkswagen	15387	13,30 %
Opel	8442	8,70 %	Peugeot	7976	6,90 %
Ford	6725	6,90 %	Opel	7588	6,60 %
Peugeot	5647	5,80 %	Ford	7090	6,10 %
Audi	4101	4,20 %	Volvo	6394	5,50 %
Nissan	3992	4,10 %	Audi	5425	4,70 %
Volvo	3645	3,70 %	Nissan	3996	3,50 %
Mercedes-Benz	3605	3,70 %	Suzuki	3935	3,40 %
Mitsubishi	3581	3,70 %	Subaru	3924	3,40 %
Total	97378	100 %	Total	115645	100 %

Two brands have a stable market share of above 10%, Toyota and Volkswagen. Compared to the situation in the EU-12 it seems to be two distinct attributes to the Norwegian market: Toyota has a relative high market share in Norway compared to that in the EU-12 which averages 6 percent (including Lexus) in the period 1997-2004, and Renault has a relative low market share. Renault was the only make which had a share of above 10 percent in the EU-12 in 2004¹⁴ but is not in the Norwegian top 10 list in either 2000 or 2004.

2.3 Concentration

The C4 index is the combined market share of the top four firms. It can be used to measure how concentrated the industry is, a large number indicating a highly concentrated industry. According to London Economics a C4 of below 60 percent is rare in the EU-12, but it has decreased in most countries¹⁵. Based on data of number of vehicles sold in Norway, the market share and C4s for the importers and manufacturers are calculated:

¹⁴ London Economics 2006:26-28

¹⁵ London Economics 2006: 27

Table 2.3: Market shares for importers and producers in Norway and C4 indexes. Source: OFV

<i>Importers</i>	<i>Makes¹⁶</i>	<i>Market Share</i>
Harald A. Møller	VW, Audi, Skoda	20,74 %
Toyota Norge	Toyota, Lexus	15,11 %
Bertel O. Steen	M-B, Peugeot, Chrysler, Kia, Daihatsu, Jeep	11,29 %
General Motors Norge	Opel, Saab	9,06 %
C4 index		56,20 %
<i>Producers</i>		
Volkswagen	VW, Audi, Skoda, Seat	20,85 %
Toyota	Toyota, Lexus	15,11 %
Ford	Ford, Volvo	11,66 %
General Motors	Opel, Saab, Daewoo, Cadillac, Chevrolet	9,42 %
C4 index		57,03 %

The C4 index for both importers and producers are slightly below 60 percent and this may indicate that the Norwegian market is not more concentrated than the rest of Europe.

Another measure for the concentration of an industry is the Herfindahl index. This index is calculated by the formula $H_f = \sum s_i^2$ where s_i is the market share of a single firm. When measuring the market shares in percentage a monopoly market has a Herfindahl index of 10,000. *London Economics* considers a Herfindahl index of 1,800 to be a threshold where values above indicate that the market is highly concentrated. They find that the index has decreased in most countries from 1997 to 2004 and that the average for EU-12 is slightly above 1,500 in 2004¹⁷.

Using sales numbers for the Norwegian market in 2004¹⁸ I was able to identify 115,206 out of 115,645 cars (99.62 percent) to specific importers. Calculating the market share based on this information gave a Herfindahl index of 1088. I regarded the makes Mazda and Hyundai as being imported by the same firm, even though this was only the case at the beginning of 2004¹⁹. The Herfindahl index is therefore likely to be even lower after 2004. Like the C4 index, this indicates that the Norwegian market is below average concentrated compared to other European countries. Note that both indexes are calculated on the basis of *numbers* of vehicles sold, irrespective of their value.

¹⁶ Source for the Norwegian importers makes may be found at Bilnorge or B.I.L

¹⁷ London Economics 2006: 29

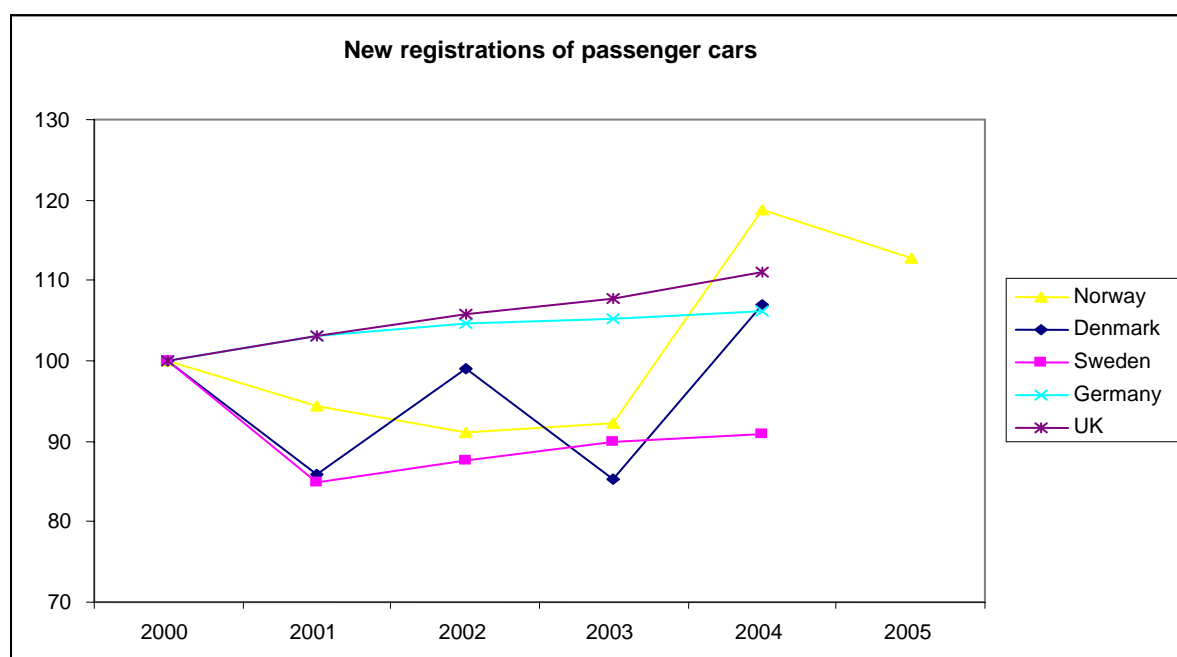
¹⁸ Received from Fiskvik 2006

¹⁹ Volla 2003

2.4 Demand

When comparing the registration of new passenger cars in Norway with other countries in Europe, it seems as if the situation in Norway may be more volatile than in other countries:

Figure 2.1: New registrations of passenger cars. All countries indexed at 100 in year 2000. Data collected from London Economics (2006: 11) and OFV.



The Norwegian market has a low of 88,721 in 2002 and peaks at 115,645 new vehicles in 2004. The two large countries in the graph, the UK and Germany, seem to be less volatile than the Scandinavian countries.

Real car prices are decreasing in Europe. While the consumer prices increased with 22.5 percent in the European Union from 1996 to 2005, car prices only increased 4.9 percent²⁰. Norway has a high taxation on cars compared to the rest of Europe, and a consequence of this is that the average age of vehicles in Norway are relatively high²¹.

²⁰ Exido 2005

²¹ Fiskvik 2006

3. The Block Exemption Regulation

Economic regulation is government intervention in the market, and competition policy or regulation may be described as a subset of that. While economic regulation is any intervention in the market, competition regulation is government intervention in order to affect the degree of competition. The difference between competition policy and other economic policy may sometimes be unclear. Subsidies to domestic farmers will affect the competition between domestic and foreign farmers, but these subsidies are not normally considered as a part of competition policy. The phrase *competition policy* will in this thesis only be used regarding laws that have as their main objective to affect competition.

The first competition laws emerged in the US late nineteenth century. These laws were called anti-trust laws, trust being at the time a common version of a cartel, and were a response to a merger and trust wave that increased prices in the oil and railroad industries. Consumers, farmers and small firms suffered from the price increases and anti-trust laws emerged in several states. In 1890, the Sherman Act came into effect as the first federal competition law. The first European competition laws came in 1919 in UK and 1925 in Germany. The anti-trust and competition laws were and are designed to keep dominant players from exploiting their dominant position²².

In this chapter I will give some background information concerning competition policy and vertical relations before discussing the Block Exemption in more detail.

3.1 Theories of Economic Regulation

There exist various theories that try to explain the reason for the existence of economic regulation. Whether the economic regulation is seen as effective or ineffective, it is nonetheless interesting to examine the possible reasons for their existence. Posner²³

²² Motta 2004: 3

²³ Posner 1974

discusses two main theories: The Public Interest Theory and different versions of what I will call The Interest Group Theory²⁴.

3.1.1 The Interest Group Theory

The idea that regulation is prompted by actions of interest groups is the main assumption behind this theory. Posner makes a distinction between what he calls the capture theory and the economic theory of regulation. Dominant players who "capture" the regulation either by lobbying or rallying voters characterize the capture theory-version. With "players" are here meant firms, undertakings, labour unions or other interest groups. The idea that government changes can be seen as consequences of the actions of interest groups is popular among social scientists. In the economic theory-version a demand-supply aspect replaces the "capture" -element. Suppose there is a possible economic regulation which will affect the players in a certain industry: This regulation will give the players in the industry an aggregate gain A , and the regulatory change can be achieved at a lobbying cost of C . If $A > C$, the players would profit from cooperating and the regulation would come into effect. Suppose starting a cartel is possible and profitable for the players in this industry, but the deviation-problem makes it impossible to sustain the cartel. The players in the industry can see the regulation as a more costly but binding alternative to the cartel. According to the interest group theory there is no guarantee that economic regulation gives an optimal welfare outcome, the opposite could be even be more likely.

3.1.2 The Public Interest Theory

According to the Public Interest Theory the government intervenes in the market through regulation when it is in the public interest to do so. If a market is not functioning optimal, the government can intervene and the market will become more efficient. Posner mentions two crucial assumptions of this theory: The first is that markets often function inefficiently and the second is that government intervention is inexpensive. Suppose there is a possible economic regulation that would give the society as a whole a gain of A . This regulation would be implemented and enforced at a cost C for the government. If $A > C$ it is in the public's interest to adopt the regulation. Hence economic regulation would only exist if it were optimal for the society. In his critique of this theory Posner points out that if this theory

²⁴ Posner describes multiple variants of the latter version, but in order to simplify I will concentrate on the essence which remains the same.

is correct, we would expect to find that highly concentrated industries should be more often subject to regulation because of the greater danger of monopolization or cartels. He claims that this is not the case.

In the interest group theory the government is seen as passive and the players in the industry as active, while in the public interest theory the roles are opposite. In reality both the government and the players are of course very active, and these theories should therefore not be seen as contradictory but as different points of view when explaining economic regulation.

In economic theory one employs welfare as a measure of how well the industry performs. Total welfare is the sum of consumer surplus and producer surplus. It is not totally clear which should be the objective of competition law: Suppose there exists only two firms in an industry. These firms want to merge and exploit economies of scale in the production. The merged firm would reduce the total costs with A , but since the merged firm is monopolist the prices would increase and the consumer surplus would be decreased with B . If $A > B$ total welfare increases but the consumers are worse off. Most economists would probably support the merger, but it is not taken for granted that most competition authorities would.

3.2 Vertical Relations

Before 1950 authorities made little distinction between horizontal and vertical mergers, both were often considered anti-competitive if the firms involved had a large market share. This position on vertical integration was then starting to be criticized by economists, most notably from the Chicago-school²⁵.

3.2.1 Double Marginalization

The clearest case against a prohibition of vertical mergers per se is the concept of double marginalization²⁶. If a monopolist sells its products to the consumers through an intermediary, the intermediary will also act as a monopolist and maximize its profits. Hence the quantity sold to the consumers will be lower and the prices higher, than if the firm were vertically integrated. If the firms merged, both the producer surplus and consumer surplus would increase. Double marginalization is a concept that always should be kept in mind

²⁵ See Motta 2004 for a discussion of the Chicago school.

²⁶ Spengler 1950

when considering vertical relations. An intermediary, even in a competitive environment, will always want to maximize its profits. If there are no other efficiency benefits from selling through the intermediary, vertical separation will reduce total welfare.

3.2.2 *Up-Stream versus Down-Stream*

When I discuss vertical relations in this thesis I will discuss cases where the up-stream firm buys the down-stream firm(s) or impose vertical restraints on them, since this reflects the structure of the automotive industry. This does not mean that a down-stream firm cannot be the powerful one and buy or impose restraints on up-stream firms. An example is Microsoft, which is a down-stream firm in the computer market. Before 1994 Microsoft imposed vertical restraints on the up-stream firms, the computer producers, which gave the producers incentives to only supply their computers with Microsoft's operating system²⁷.

3.2.3 *Foreclosure*

A common argument against vertical integration is the danger of foreclosure. If an upstream firm merges with a downstream firm the claim is that it may have an incentive to stop supplying to other downstream firms. Suppose that in a given industry there exist one upstream firm U and two downstream firms $D1$ and $D2$. If U merges with $D1$ it will foreclose $D2$ and total welfare will be decreased. An argument against this theory emphasized by economists associated with the Chicago-school is that the ability to restrict output is determined by the market share occupied by the firm and that vertical mergers do not affect market shares. In the example above U is already a monopolist and the merger will not affect its market share. This argument of course also holds without a monopoly. If an upstream firm with a 10% market share upstream merges with a downstream firm with 10% market share downstream, the combined market share will remain 10% and the merger will not reduce total welfare. The upstream firm will only merge with the downstream firm if there are efficiency gains and these will then increase welfare. The core argument from the Chicago-school was that firms will only integrate vertically if there are efficiency gains, and hence that regulation of the possibility to merge vertical will reduce welfare²⁸.

²⁷ Cabral 2000: 198

²⁸ Moen and Riis 2003

3.2.4 Moral Hazard

There has also been raised several other arguments which indicates that vertical integration may increase welfare. First I will mention the danger of moral hazard²⁹. Suppose there are one upstream supplier and one downstream retailer in a market. Let the retailer provide a service, which increases the demand for the good, and that the service is costly to produce. This service can be advertising or other efforts that increase sales. When the retailer maximizes its profits with respect to the service level, the level of service may be lower than what is optimal for the producer and welfare will be lower than with vertical integration. This is because the retailer only considers its own profit when it determines the level of service. A slightly different example also shows that the service level can be underprovided: Suppose again that there exists one upstream supplier U and two downstream firms $D1$ and $D2$. The downstream firms supply an additional service that increases the demand for the good. Suppose that the final goods sold from $D1$ and $D2$ are identical and that they compete in the same market. Then the demand for goods from $D1$ will increase when $D2$ increases its level of service and vice versa. The optimal situation for both retailers is that the other firm provides all the service while they free ride. Hence the service level provided by the retailers will be lower than under vertical integration.

3.2.5 Vertical Restraints

There are several ways in which a supplier can achieve a solution that improves the situations mentioned above without vertically integrating; these are called vertical restraints³⁰. The supplier can use *non-linear pricing*. Instead of setting a price proportional to quantity sold, the supplier imposes a two-part tariff. The dealer pays one fixed fee in addition to a price for each quantity. This is also called franchise fee, and allows the supplier to extract the dealer's surplus through the fixed fee. The supplier may also give the dealer progressive rebates, *quantity discounts*, which makes the average price cheaper the larger the quantity. *Quantity fixing* is another vertical restraint where the dealer has to buy a specific number of products from the supplier. The producer may also fix the price that the retailer has to charge his costumers; this is normally called *resale price maintenance* (RPM). A supplier may give a dealer an *exclusive territory* and make the dealer a monopolist in this area or over a specific consumer group. *Exclusive dealing* is when the supplier requires the

²⁹ Tirole 1988: 177-178

³⁰ Motta 2004: 303

retailer to only sell his brands, also called single branding. The supplier may also use *selective distribution* and select his dealers based on quality criteria.

The effects of these vertical restraints depend on which assumptions that are made. I will not make a thorough analysis of all these restraints under different conditions. Later, when I describe the Motor Vehicle Block Exemption, I will discuss which vertical restraints, which have been or are available for the suppliers within the automotive industry and analyze the effects of these.

3.3 European Competition Laws

According to European Economic Area Law (in Norway), Norway is subject to the competition laws in the EC Treaty³¹. This treaty states:

“The following shall be prohibited as incompatible with the common market: all agreements between undertakings, decisions by associations of undertakings and concerted practices which may affect trade between Member States and which have as their object or effect the prevention, restriction or distortion of competition within the common market, and in particular those which:

- (a) directly or indirectly fix purchase or selling prices or any other trading conditions;*
- (b) limit or control production, markets, technical development, or investment;*
- (c) share markets or sources of supply;*
- (d) apply dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage;*
- (e) make the conclusion of contracts subject to acceptance by the other parties of supplementary obligations which, by their nature or according to commercial usage, have no connection with the subject of such contracts.”*³²

This is the European competition law that affects vertical restraints between firms.

According to (a) any price fixing is illegal. This excludes the use of RPM for up-stream firms. Paragraph (b) prohibits the up-stream firm from using quantity fixing and attempts to control the level of investment. The use of exclusive territories is prohibited according to (c), and price discrimination between down-stream firms according to (d). Paragraph (e)

³¹ Konkurransetilsynet 2005a

³² EC Treaty 81(1)

prohibits any bundling of products or services for up-stream firms, unless these products/services are connected. Article 81(1) removes several of the vertical restraints that are available for up-stream firms. In addition to prohibiting certain forms of vertical restraints, the article is also prohibiting collusion between dominant undertakings in the market. It is worth noting that the law only covers undertakings that “may affect trade between Member States”, since firms who do not affect inter-state trade are considered to be subject to national law.

3.4 The General Block Exemption

The European Commission seems to acknowledge that a prohibition *per se* against such vertical restraints is not optimal, because as vertical restraints may actually increase total welfare³³. Article 81(3) of The EC Treaty therefore opens for exemptions from Article 81(1) if agreements or decisions increase efficiency in production, distribution or researching “*while allowing consumers a fair share of the resulting benefit*”. This must be understood in such a way that increasing total welfare is not enough; consumer surplus must also increase if the agreement is to be exempted.

The Commission has therefore granted an exemption for agreements concerning supply and distribution, the Block Exemption Regulation³⁴. This regulation concerns relations between producers and retailers, and therefore which forms of vertical relations that are exempted and which are still prohibited. Even though some forms of vertical restrains are exempted, the exemption covers far from everything. The Block Exemption does not cover firms with a market share above 30 %. This is presumably because the Commission wants to keep dominant firms from exploiting their position and thus decreasing competition. In the Block Exemption the Commission distinguishes between normal restrictions and hard-core restrictions. The most important hard-core restrictions are RPM, exclusive territories and selective distribution. By RPM is here not meant a maximum price or recommended price, which is normally not prohibited. The hard-core restrictions do *normally* not benefit from the exemption.

³³ E.g. Chapter 4.2.1

³⁴ EC No 2790/1999

3.5 The Motor Vehicle Block Exemption Regulation

Even though there is a general exemption for distribution, the automotive industry has been granted an exemption of its own (the BER). A possible reason for this is that the automotive industry is regarded as such an important industry that the car producers must have more possibilities to control the product after it has left the factory than producers in other industries. Traffic accidents may have severe externalities: People may get seriously injured or die. Accidents may cause large traffic jams, which will have consequences for a large number of people. Cars are very complex products and will often need spare parts after they are sold. Due to this complexity it is unrealistic that a normal consumer has the information necessary to determine the quality of a spare part and if the vehicle is in proper condition when bought. It may therefore seem reasonable that if the car producers are prohibited from ensuring the quality of the cars after they have left the factory traffic accidents may increase. According to Posner's Public Interest Theory this is a valid reason for the existence of the BER. If one should look for a possible explanation according to the Interest Group Theory it can be that the car industry is a very powerful industry in major European countries like France and Germany, and that these firms have lobbied through the Regulation without respect for efficiency gains. A relative strengthening of the producers may make it easier for the large European car producers to attempt to block entry from possible non-European competitors.

3.5.1 *Intentions Behind the BER*

The former BER³⁵ expired on the 30th of September 2002 and was replaced the next day by the new BER³⁶. A transition period until 30th of September the next year was granted in order to let the affected firms have time to adapt to the new regulation. The new BER expires the 31st of Mai 2010 and will then either be replaced by a new one or be completely removed. If it is removed the general Block Exemption for vertical agreements will cover the automotive industry. In 2002 Romano Prodi, the president of the European Commission expressed the intension behind the new BER:

“The new Regulation is thus designed to safeguard the interests of:

- vehicle owners in having a wide choice at competitive prices;

³⁵ EC No 1475/95

³⁶ EC No 1400/2002

- *manufacturers in protecting their brand image;*
- *dealers in growing stronger and more competitive;*
- *component producers in depending less on a single customer;*
- *and above all, the wider interest of our economy in a functioning, transparent and competitive single market, which will bring great benefits for all.”*³⁷

Besides wanting to secure that consumers will still be satisfied he mentions three specific points: The first is that he wants to secure the car producers' right to protect their brand image. A Premium brand like Mercedes-Benz must be granted the right to protect that Premium brand-image. These rights may be in the form of quality criteria for training of the sales personnel or the showroom. Distribution contracts, which include restrictions of this kind, are called selective distribution after quality criteria, and are to some degree still allowed. The second point is that the European Commission wants to strengthen the retailers and make them more competitive. This is a more general point, but must be interpreted as if the Commission wants to reduce the control the car producers have over their distribution network, and that this is the reason behind several of the changes in the new BER. A reason for this may be that a relative strong position of the retailers is often connected with lower prices and therefore is better for the consumers. The third point states that spare-part producers should depend less on a single customer and this single customer must most certainly mean the car producer. The spare-part producers will now be given more possibilities and incentives to sell directly to the retailers or to consumers. The last point mentioned by Prodi reflects the idea of the European Union as a single market, and that the new BER may be seen as means to this end.

It should be noted that two of these points mentioned by Prodi indicates a relative weakening of the position of the car producers. In the old BER the car producers were exempted for a large set of vertical restraints, which they could use in their retailer agreements, but several of these are no longer granted with exemption under the new BER.

3.5.2 Use of Expressions

I will first define some expression used in my description of the new BER: If not specified otherwise *the BER* (or *the new BER*) will be used for the new Motor Vehicle Block

³⁷ Prodi 2002

Exemption Regulation³⁸. *Supplier* will be used for both producers and importers of cars, while a *dealer* is a retailer of these. A dealer is *multi-branding* when he sells cars from two different suppliers. *Selective distribution agreements* are agreements where the supplier imposes quality or quantity criteria on the dealers. *Exclusive distribution agreements* are where the supplier gives a dealer certain rights over a geographical area or a specific consumer group.

If the agreement is to benefit from the BER there are some restrictions related to the market share of the firms. Except from quantitative selective distribution agreements, the market share for any of the involved firms cannot exceed 30 percent. For quantitative selective distribution agreements the market share may be up to 40 percent³⁹. As seen in chapter 2 no supplier exceeds the 30 percent market share barrier at the national level in Norway.

3.5.3 Multi-branding

To strengthen the dealers and make them more competitive was an important aspect of the intention behind the changes in the BER. Among others this means that it should be easier for a dealer to sell different brands. In the old BER of 1995 the suppliers could to a larger extent restrict the dealer's possibility to sell multiple brands. The supplier could restrict the dealer "*not to sell new motor vehicles offered by persons other than the manufacturer except on separate sales premises, under separate management, in the form of a distinct legal entity and in a manner which avoids confusion between makes;*"⁴⁰ The phrase "separate sales premises" meant that different brands had to sold in different show-rooms, but the show-rooms could be located in the same building. In addition the supplier could demand that the brands had to be sold by different companies with separate accountings and separate sales personnel. The last point is a bit vaguer, but meant in practice that different brand logos could not be shown together on the sale personnel's uniforms and that advertising material had to be kept separate⁴¹. All these restrictions contributed to a higher fixed cost for a dealer who wanted to sell a new brand and therefore reduced the economies of scope. The supplier could in other words reduce the dealer's incentives to multi-branding.

³⁸ EC No 1400/2002

³⁹ EC No 1400/2002 Art 3.1

⁴⁰ EC No 1475/95 Art 3.3

⁴¹ Explanatory Brochure 1475/95: 13

In the new BER the vertical restraints the suppliers may use are significantly constricted. The supplier still is allowed to demand that the brands must be sold separately, but they can now be displayed in the same showroom and sold by the same sales personnel. If a supplier obliges a dealer to further separation which makes it “unreasonably difficult” to sell an additional brand, the agreement will not be exempted. The Commission gives some examples of what is allowed and what is not in an explanatory guide to the BER: A supplier can for example oblige a dealer to have a luxury carpet in the part of the showroom and have brand signs which are visible from the outside. It cannot demand that a dealer with a relatively small showroom must display all different models of its make or have much space between different brands. Also the supplier cannot oblige the dealer to display all its vehicles alongside the windows⁴². Hence, the possibilities for a supplier to restrict multi-branding among its dealers under qualitative selective distribution agreements are reduced. When quantitative selective distribution agreements are being used, there is an upper boundary for what the supplier may oblige the dealers to buy 30 percent. Obligations for the dealer to buy more than 30 percent are defined as “non-compete obligation” and are not granted by exemption⁴³. The dealer is of course allowed to buy 100 percent of his vehicles from one supplier if he should want to do so.

In the old BER of 1995 it was allowed for the supplier to oblige the dealer to buy “a minimum quantity of contract goods, determined by the parties by common agreement or, in the event of disagreement between the parties as to the minimum number of contractual goods to be sold annually, by an expert third party”⁴⁴. This definition is without doubt vaguer than the specific 30 percent limit in the new BER. In addition it is not unlikely that a dealer would have a weaker position than the supplier if the quantity-obligation were to be determined by a third party since the suppliers normally are much larger undertakings. The new 30 percent limit clearly makes it a lot easier for dealers not to be pressured into a role as a single-brand dealer.

⁴² Explanatory Brochure 1400/2002: 52

⁴³ EC No 1400/2002 Art 1(b)

⁴⁴ EC No 1475/95 Art 4.1.3

3.5.4 Duration and Termination

In the old BER of 1995 the duration of the agreements was determined to be at least 5 years⁴⁵ and notice had to be given 6 months in advance if the contract was not to be renewed⁴⁶. If the contract was set for an indefinite time period a two-year period of notice for termination had to be given. This time period could be reduced to one year if the supplier paid compensation, if it was the first agreement with the dealer⁴⁷ or if the supplier was reorganizing a large part of its distribution network⁴⁸. In event of a disagreement a third party could decide whether it really was a large part of the distribution system that was reorganized. These points are unchanged in the new BER and in addition a new important point is added: The supplier has to “give such notice in writing and must include detailed, objective and transparent reasons for the termination”⁴⁹. This makes it a lot more difficult for a supplier to terminate the agreement if the dealer should engage in multi-branding against the supplier’s wishes.

3.5.5 Exclusive Territories

In the new BER a distinction is made between *active sales* and *passive sales*. With active selling in an area is meant to open a sales or delivery outlet, or contacting consumers directly through visits or mail. A passive sale means responding to consumers directly or indirectly. Advertising on Internet and then responding to consumers is regarded as passive sales⁵⁰. A dealer can even have a web page where he sells cars without that being regarded as active sales by the European Commission⁵¹.

The Commission also distinguishes between independent *resellers* and *intermediates* acting on behalf of costumers. A reseller is an agent who buys cars with the intention of selling them to consumers, without being contacted by the consumer before it has purchased the car. Intermediaries are agents who have been contacted by customers and are purchasing the specific car on their behalf.

⁴⁵ EC No 1475/95 Art 5.2.2

⁴⁶ EC No 1475/95 Art 5.5.3

⁴⁷ EC No 1475/95 Art 5.2.2

⁴⁸ EC No 1475/95 Art 5.2.3

⁴⁹ EC No 1400/2002 Art 3.4

⁵⁰ Explanatory Brochure 1400/2002: 30

⁵¹ Explanatory Brochure 1400/2002: 49

In the new BER a supplier has to choose either a selective or an exclusive distribution system in a given geographical area. If the dealer operates within an exclusive distribution system, the supplier can restrict the dealer from selling actively outside its territory or its consumer group. The dealer may however sell passively to all costumers including independent resellers and it may sell actively in areas where the supplier uses a selective distribution system. In a selective distribution system the supplier has the right to deny the dealer to sell to resellers. When a dealer sells to an intermediary, the supplier may oblige the dealer to require an authorization from the end consumers that includes the consumers name and address and is signed and dated. The signature can however be made electronically. In addition a dealer may also ask for photocopies of identity cards from the consumer, but the supplier may not instruct its dealer to acquire such documentation on a regular basis⁵². In the old BER of 1995 the supplier could oblige its dealers to require signed and dated documentation including make and model of the car from the intermediary, but this is no longer required⁵³.

With respect to exclusive territories the most import change in the BER concerns dealers within a selective distribution system and their rights to sell actively within a selective distribution system. In the past it was not allowed for dealers within a selective distribution system to sell actively outside their territory. The new BER prohibits “any direct or indirect obligation on any distributor of passenger cars or light commercial vehicles within a selective distribution system, which limits its ability to establish additional sales or delivery outlets at other locations within the common market where selective distribution is applied.”⁵⁴ While the rest of the BER came into effect on the 1st of October 2002, this article was not made effective until exactly three years later. This is just for motor vehicles less than 3.5 tons⁵⁵ probably because costumers of trucks and busses are regarded as geographically more flexible regarding purchase location. Dealers may now “freely” open a new sales outlet in the entire European Economic Area where exclusive distribution is not being used. The new outlet must satisfy the same quality standards as other similar dealers of the same brand in the given area. The dealer cannot close its initial outlet without approval of the supplier⁵⁶.

⁵² Explanatory Brochure 1400/2002: 45-46

⁵³ Explanatory Brochure 1475/95: 27

⁵⁴ EC No 1400/2002 Art 5.2.b

⁵⁵ EC No 1400/2002 Art 1.o

⁵⁶ Explanatory Brochure 1400/2002: 54

3.5.6 *After Sales Servicing*

The BER also regulates the vertical relations between car producers, spare part producers, spare part dealers and repairers. Even though these relations are very important I will only briefly discuss aspects that do not concern the relationship between suppliers and dealers of cars, since this is the subject of the thesis. Under the new BER manufacturers can no longer limit the number of authorized repairers who fulfil the quality criteria or decide on their location. Independent repairers have strengthened their position after the new BER. They are now secured better access to technical information, tools and equipment at non-discriminatory conditions⁵⁷. The spare part producers have been given the right to label their parts as “original” even if they are not sold through the car manufacturer. Besides when a repair is in the context of warranty, an authorized repairer may also use spare parts of matching quality instead of original spare parts without informing the customer⁵⁸. This strengthens the possibility for spare parts producers to sell directly to other costumers than the car producers as mentioned in the 2002 Speech by Prodi quoted above.

In the old BER of 1995 the suppliers could also oblige that the dealer to have a repair shop. This is changed under the new BER and dealers can now subcontract the repair and maintenance service. The supplier may require that the services be subcontracted to an authorized repairer already in the supplier’s network. If the dealer has subcontracted the services to a repairer at a different geographical location, the supplier may also require that the dealer give the costumer the name and address to this repairer if the supplier also requires this from other dealers in their network who do not have the repairer on the same premises as the sales outlet⁵⁹. This regulatory change makes it easier for both dealers and repairers to specialize in their given activities. If a dealer wants to sell a new brand he does not have to open an authorized repair-shop for the new brand, and hence the fixed cost will be lower.

⁵⁷ EC Current Rules and New Rules: 12

⁵⁸ Explanatory Brochure 1400/2002: 62

⁵⁹ EC No 1400/2002 Art 4.1.g

4. Exclusive Dealing and Territories

Under the new BER the suppliers' possibilities to use exclusive dealing and exclusive territories have been reduced. What sort of effects do these vertical restraints have?

4.1 Exclusive Dealing

As mentioned above one important element in the Commission's motivation for the new BER is to make it easier for dealers to sell different brands. The dealers are now free to sell different brands in the same show room with the same sales personnel, and there is a 30 percent upper limit for the quantity that the supplier can oblige the dealer to buy of his own brand. In this chapter I will analyze the effects of exclusive dealing and the consequences that it may have on both suppliers and dealers under different conditions.

4.1.1 *One-stop Shopping*

An intuitively positive effect of multi-branding, or non-exclusive dealing, is the concept of one-stop shopping. The crucial assumption supporting the theory of one-stop shopping is that the consumers have search cost. Assume that two close substitutes are being sold in the market by two different shops at the same price and that consumers have slightly different preferences between the two products. The consumers know that the products are slightly different but do not know which product they prefer until they have visited one of the stores. Let U_H be the utility a consumer receives from the product he prefers and U_L the utility from the product he does not prefer. Assume in addition that the consumers have some sort of search cost, s . This search cost may be in the form of transportation cost if the stores are located far apart, or because of the time the consumers have to spend visiting the stores. If a consumer first visits the store which carries the product he gets the lowest utility from there will be a loss in consumer surplus which can occur in two ways: If $U_H - U_L > s$ the consumer will visit the next store and the loss in consumer surplus will be s and if $U_H - U_L < s$ the consumer will buy the least preferred product and the loss will be $U_H - U_L$. If the probability of visiting the wrong store is larger than zero, the probability of a sub-optimal outcome will also be larger than zero. This welfare loss will naturally not occur if both products had been sold in the same shop.

The argument against this theory supporting the concept of multi-brand stores is that the brands do not necessarily have to be sold by the same firm; they need only be sold at the same place. In car retailing there is a well-known phenomenon of retailers clustering together. In Norway an example could be Ensjø in Oslo where a number of retailers are located including shops owned by Norway's three largest importers, Toyota Norge, Bertel O. Steen and Harald A. Møller. Even if the shops are positioned at the same location there will still be some search cost since the consumers do have to visit the different stores and compare different offers. This search cost however is undoubtedly very small compared to the prices of cars and the search cost argument for multi-branding is not strong. One could also expect the Internet to reduce the search cost for the consumers since it should be much easier to compare prices and specifications between different brands and stores.

4.1.2 Economies of Scope

A retailer has some fixed costs when starting up a shop: The show room and office has to be bought or rented, sales personnel must be hired and trained. If the additional cost of selling a new brand is lower than the costs connected to the first brand, i.e. there are economies of scope; the dealer will have an incentive to sell more brands. The lower total cost may also lead to lower prices and therefore a higher consumer surplus.

Under the new BER the retailers may use the same show room and sales personnel when selling two different brands and both brands may be sold by the same legal entity. This will without doubt increase the economies of scope and hence give the dealers an incentive to sell more brands.

4.1.3 Provision of Services

Multi-branding may reduce efficiency when a service is required to increase sales. Suppose two different producers sell two close substitutes through one single retailer. Assume that the producers may pay the retailers for providing some service that will increase the number of potential costumers. This service may be advertising or training of sales personnel. If just one of the producers pays for these services the other producer may undercut him in pricing since he has lower costs and therefore get almost the whole market. Hence both producers

will not provide any service and quantity sold will therefore be lower than with exclusive dealing.

This effect may help to explain why several suppliers of cars show some scepticism towards multi-branding among their retailers. The importers in Norway are normally responsible for advertising. If an importer invests a large amount in an advertising campaign for his brand and this campaign makes a lot of potential customers visit the retailers, it would clearly be catastrophic if the costumers then were advised to buy a different brand by the retailers. The retailer will have an incentive to do this if the profit margin of the other brand is higher. This effect would increase when the degree of substitution between the products increased, since the consumers then would be more likely to buy the other product.

4.1.4 Foreclosure

An often-debated topic is whether exclusive dealing can lead to foreclosure. Suppose that we have only one retailer but two producers, an incumbent and a potential entrant. Can the incumbent sign an exclusive dealing contract with the retailer and thereby foreclose the entrant? The Chicago school claimed that he could not: The retailer will only accept such a contract if he benefits from it. If the potential entrant is more efficient than the incumbent, the retailer will not benefit from signing an exclusive dealing contract with the incumbent. If the incumbent is more efficient the retailer will sign the contract, but the exclusive dealing will then not decrease efficiency.

In more recent time models have been made which show that an incumbent may foreclose a more efficient entrant; if there are externalities with respect to the relationship between the incumbent and the retailer. Motta⁶⁰ mentions an example where the incumbent may increase profits in another market if he manages to foreclose the entrant: The entrant will not be able to exploit the economies of scope between the two markets and his costs will increase. This will give the incumbent higher profit in the other market and he may then pay a higher price to the retailer for signing the exclusive dealing contract.

The risk of foreclosure in car retailing is presumably not large. The producers of cars are large corporations compared to single-store retailers. The entry cost for a retailer is not large,

⁶⁰ Motta 2004: 364

so the assumption of only one retailer makes little sense in automotive distribution. If a “new” car manufacturer wants to enter the Norwegian market he is not limited to selling his cars through existing retailers; he may just open his own sales-outlet or sign a contract with an agent who will open it for him. The risk of foreclosure may become more relevant if we get larger retailers with more market power in the Norwegian market.

4.2 Exclusive Territories

After the new BER the possibilities for a supplier to use exclusive territories (ET) has been strongly reduced and is virtually not possible any more. As mentioned above, a supplier can no longer combine exclusive with selective distribution agreements. If he chooses exclusive distribution in an area, the dealers can freely sell to independent resellers. This is presumably not an ideal situation, since the supplier has no control over the independent resellers.

According to London Economics (2006) the use of exclusive distribution systems are becoming increasingly rare: Of the brands that did take part in their survey, only Alfa Romeo and Fiat used an exclusive distribution system after 2003, and this was only in Estonia⁶¹. The supplier still has the right to limit the number of dealers in a given territory when selective distribution systems are used, but as mentioned above they can no longer keep the dealers from expanding after 1st of October 2005 when Article 5.2.b came into effect. Dealers in a selective distribution system can now freely open an additional outlet wherever the supplier uses selective distribution.

In the following chapter I will analyze the effects of exclusive territories under different conditions. I will discuss why it could have been profitable for the suppliers to use it in the past, how this affected the costumers and if the new situation gives the suppliers an incentive to vertically integrate down-stream.

4.2.1 Price Discrimination

The intuitively clearest argument behind the use of ET is that the producer may price discriminate between different territories. Suppose an importer of cars considers importing a fixed quantity of 100 cars at an average cost of 100K⁶². The importer can only sell his cars in two different territories, North and South. Assume that North and South are separated,

⁶¹ London Economics 2006: 59

⁶² Similar example in Moen and Riis 2003

arbitrage is impossible and two different consumer groups inhabit them. There are fifty consumers in North and they have a willingness to pay of 80K, while the consumers in South also count 50 but have a willingness to pay of 120K. If the producer can discriminate between the groups he will sell the cars at a price of 80K in North and 120K in South, and he will make zero profit. If he cannot discriminate, he may either sell 50 cars at a price of 120K or sell 100 at a price of 80K. In the first case he will lose 4,000K and in the latter he will lose 2,000K and will therefore not import the cars if price discrimination is illegal. In this very simple example is it not only profitable for the importer to price discriminate but it is also better for the consumers since none will have the possibility to buy when price discrimination is illegal. Obviously there also exists examples where price discrimination does not benefit the consumers, but as shown above price discrimination may improve the total surplus.

How price discrimination of cars in the European Economic Area affects total surplus is not easy to analyze and is way beyond the scope of this thesis. It is more important that it is against the idea of The Single Market. This was a point mentioned in the Speech by Prodi in and is a reason for removing the possibility of ET⁶³. Since the use of ET may improve total welfare one may look for reasons elsewhere than in competition theory for the idea of the Single Market and I will therefore not discuss them here.

The taxation of cars within the European Economic Area varies significantly. According to eurocarprice.com Switzerland has the lowest tax with 7.6 percent in Western Europe, while Denmark has the highest at 178.8 percent and Norway has 98.5 percent⁶⁴. These large differences naturally give the car manufacturers incentives to correct for the tax difference and price discriminate. A survey made by the European Commission shows that pre-tax prices vary significantly between countries: an example is Ford Focus which is almost 30 percent more expensive in Germany than in Finland⁶⁵. Since the level of taxation is determined by national authorities it is outside the reach for the Commission to control, even though a harmonized taxation level would make real, pre-tax car prices more visible and hence strengthen the Single Market.

⁶³ Explanatory Brochure 1400/2002: 13

⁶⁴ Fiskvik 2006

⁶⁵ EC Car Price Report 2006

In 1998 The European Commission fined Volkswagen AG ECU 102 million for restricting their Italian dealers from selling to German or Austrian customers⁶⁶. VW AG was found guilty of threatening 50 authorized dealers with termination of their contracts if they sold to German or Austrian customers and actually terminating the contracts of twelve dealers. In 2001 VW AG was fined again, this time €30.96 million, for RPM measures in the German market in 1996 and 1997⁶⁷. The Commission found evidence that VW AG had instructed their German dealers not to sell the new Passat below the recommended price. Both the illegal restrictions VW AG was fined for were related to price discrimination. In Germany they kept prices high and in Italy, where the prices were lower, they tried to prevent German customers from buying cars.

4.2.2 Double Marginalization

The concept of double marginalization provides a basic intuition against the use of ET for a producer. Suppose an upstream monopolist sells his products to a downstream monopolist, and he is prohibited from vertically integrating or in other ways extracting the retailer's profit. As discussed above, the supplier's profit and the total surplus would then be lower than the vertically integrated solution. Suppose then that he could sell his products to an additional retailer within the same territory, and the two retailers would engage in price competition. With zero marginal costs and perfect Bertrand-competition, price would equal wholesale price, and the upstream firm's profit would be the same as with vertically integration.

4.2.3 Provision of Services

In the example above assume that the retailers provide a service that increases the demand for both dealers. Assume in addition that this service is costly for the retailer. When the products are perfect substitutes and the dealers compete a la Bertrand, both dealers will have an incentive to under cut the other and serve the whole market. The prices will then equal the wholesale prices but no service will be provided and the result therefore worse for the supplier than under vertical integration. If the supplier terminates the contract with one of the dealers (i.e. uses ET) the remaining dealer, now a monopolist, is in no danger of being undercut and will provide services to increase his sales. The level of service may not be

⁶⁶ IP/98/94

⁶⁷ IP/01/760

optimal since the retailer only considers his own profit when he sets the price, but this can be solved by the use of other vertical restraints. With RPM the supplier may set the price and the wholesale price at a level that gives the retailer an incentive to provide the optimal service level. The supplier may then achieve a result similar to the vertical integration solution⁶⁸.

In Norway the importers of cars are normally responsible for advertising, and they can control the level of other services at the dealers through qualitative distribution agreements. The example above may therefore possibly help to explain why there is only one importer of each brand in Norway, but not why this importer should want to use exclusive territories.

4.2.4 Demand Uncertainty

Another example that shows how the use of ET may be profitable for the supplier is when there is uncertainty about demand. Suppose again we have a monopolist producer and two dealers in a territory with consumers without search costs. The producer uses a two-part tariff that makes him able to extract the whole surplus from both retailers. Assume that the producer has no knowledge of the demand while the retailers have. If the products are substitutes and the retailers compete à la Bertrand, the retailer with the lowest price will again get the whole market. If the producer charges the same wholesale price to both retailers, the retailers will add their marginal cost to this and charge it as the price to the consumers. The final price will therefore not depend on the demand, only on the total cost of the retailers. Again, this can be improved with the use of ET. A monopolist retailer will use monopolistic pricing which depends on the size of demand. Since the producer uses a two-part tariff and extract the whole surplus of the retailer, the vertical integration outcome will be achieved⁶⁹.

Demand is always uncertain, and this model may be helpful to understand why a supplier of motor vehicles would want to use ET. A local entrepreneur car dealer in Northern Norway is very likely to have better knowledge of the local demand than the Oslo-area based importer, and therefore more likely to set the correct prices. If he engages in a price war with another

⁶⁸ Tirole 1988: 183

⁶⁹ Tirole 1988: 188

local dealer of the same brand, this knowledge of the demand is not taken advantage of by the supplier.

5. The Model

In the chapter above concerning exclusive territories and exclusive dealing I have assumed that the producers did not own the retailers. A question becomes obvious: Why can't the producers just sell their products themselves and use exclusive territories and exclusive dealing whenever they find it optimal? The reason for this is that under certain assumptions, which will be discussed below, distribution with vertical separation gives higher profits than with vertical integration. In this chapter I will analyze the motivation for vertical separation and discuss this in the context of automobile distribution.

In the article *Vertical Separation* Bonanno and Vickers (1988) examine the motive for the producers to use independent retailers when they can use a two-part tariff to extract their surplus. Under specific assumptions, vertical separation is the dominant strategy for the producers. I will use a specified model based on theirs to analyze the incentives for vertical separation. Besides showing the result discovered by Bonanno and Vickers (1988) I will analyze if and how the situation changes if the producers are not able to use franchise fees. In both cases I will determine how a merger between the retailers affects the producers and if a pre-emptive vertical merger would be profitable for the producers. I will also observe what effects the possible scenarios will have on consumers' prices and discuss the changes in the BER from a welfare point of view. The introduction of intra-brand competition will be dealt with in a section at the end.

5.1 Assumptions

The original model from Bonanno and Vickers (1988) is simple: We have two producers selling substitute products to two retailers who compete in prices. The producers have all the bargaining power and are therefore able to extract the entire profit from the retailers as a franchise fee. Bonanno and Vickers (1988) make no assumptions about marginal cost but I will assume marginal costs for both producers and retailers to be zero. This is of course not a realistic assumption, but makes the calculation and results clearer. The results which will be shown below would not have changed if marginal costs were not assumed to zero, and marginal costs are therefore not essential for the analysis. There will be no distinction

between makes and brands in this analysis since both producers produce only one product each.

5.1.1 Demand

Bonanno and Vickers (1988) make two assumptions about the demand function (p is price and D is demand):

$$\text{Assumption 1. } \frac{\partial D_i(p_i, p_j)}{\partial p_i} < 0 \text{ And } \frac{\partial D_i(p_i, p_j)}{\partial p_i \partial p_j} \leq 0 \text{ for all } p \text{ and } i = 1, 2$$

This means that the demand for product i must be decreasing and concave in the price of i . They also assume that the products are substitutes. The demand for product i must increase when the price of product j increases.

$$\text{Assumption 2. } \frac{\partial D_i(p_i, p_j)}{\partial p_j} > 0$$

These two assumptions for the demand function must be seen as mild and very reasonable. When a producer of cars raises the price of his brand, many consumers will be likely to buy from other brands. The demand for his brand will then decrease, while the demand for other brands will increase.

A simple demand function that satisfies these two assumptions is:

$$D_i(p_i, p_j) = q_i = 1 - p_i + gp_j \text{ Where } i, j = 1, 2 \text{ and } i \neq j$$

The second expression in Assumption 1 equals zero with this demand function, so the demand is not *strictly concave*. The parameter q is quantity while g is the degree of substitution between the two brands and is confined to $0 < g < 1$. The larger g is, the higher the degree of substitution and the consumers are more likely to switch to another brand after a price increase. The parameter g may also be interpreted as an inverse measure of brand loyalty. The closer to 1 g is, the lower the brand loyalty. This demand function is the simplest demand that satisfies Assumption 1 and 2 and is used by other authors⁷⁰ in similar analysis of vertical relations.

⁷⁰ Rey and Stiglitz 1995, Lin 1990

5.1.2 Degree of Substitution

A drawback with this demand function is that the equilibrium profit for two integrated firms competing in prices *increases* with the degree of substitution. The profits for firm i will be:

$$\pi_i(p_i, p_j) = p_i q_i = p_i(1 - p_i + gp_j)$$

Since we have price competition both firms will maximize their products with respect to prices and this gives the equilibrium prices and profits:

$$p_i^* = p_j^* = \frac{1}{2-g} \text{ And } \pi(p_i^*, p_j^*) = \frac{1}{(2-g)^2} \text{ Where } \frac{\partial \pi(p_i^*, p_j^*)}{\partial g} > 0$$

The equilibrium profits increase with the degree of substitution. Based on this model we may conclude that it is in the producers' interests to make the cars more alike to increase profits, given that they are vertically integrated with the retailers. That profits should increase under price competition when brand loyalty is decreasing may seem a bit unintuitive.

The result is not in accordance with the result achieved with quadratic cost functions in *The Linear City* model⁷¹. In this model we have two firms selling their products to consumers uniformly distributed on a line. The firms decide where to locate on the line and the consumers have transport costs when moving away from their location and buying a product. The solution of the game is that the firms locate as far away from each other as possible.

The line may be interpreted as a dimension of preference, and the transport cost as the decrease in utility the consumers get when buying a product that does not match their exact preference. The line is a strictly horizontal dimension, so the differentiation between the products is in taste or preference only and not in quality. The further away the product is from the consumer, the larger the loss in utility. As mentioned above the firms find it optimal to maximize the product differentiation and locate at each end of the line.

With the simple linear demand we receive the opposite result. Although the degree of substitution is not exactly the inverse of the degree of differentiation⁷², they must intuitively be closely related. When both firms have zero marginal costs we know that the prices will be equal in equilibrium. Setting prices equal in the simple demand function gives:

$$q_i = 1 + (g - 1)p. \text{ When } g \text{ converges to } 1 \text{ the effect of a marginal price increase on demand}$$

⁷¹ Tirole 1988: 279-282

⁷² Shy 1995: 136

will converge towards zero. When altering g we do not only affect the degree of substitution but also the slope of the demand function.

A more complex demand function which is a slightly simplified version of the one used by Motta⁷³ gives a more realistic result for the situation with two integrated firms:

$$(1) D_i(p_i, p_j) = q_i = \frac{1}{2} \left(1 - p_i \left(1 + \frac{g}{2} \right) + \frac{g}{2} p_j \right) \text{ Where } g \in [0, \infty), i, j = 1, 2 \text{ and } i \neq j.$$

The only difference between this demand function and the one used by Motta (2004) is that the size of the demand is standardized to 1 here while Motta (2004) let it be expressed by a parameter v . I have chosen to standardize it since I see no reason to let the demand size be unspecified and because it makes the result clearer.

When both firms compete in prices, profit maximizing gives the first order conditions, the equilibrium prices and profits:

$$(2) p_i(p_j) = \frac{2 + gp_j}{2(2 + g)}, p_i^* = p_j^* = \frac{2}{4 + g}, \pi^{VI} = \frac{2 + g}{(4 + g)^2}$$

The prices and profits decrease when the degree of substitution increases and when g approaches infinity the prices and profits will converge to zero. This result makes more sense intuitively than the one achieved with the simple linear demand: Since the firms compete in prices the firms should always have an incentive to undercut each other a la Bertrand and serve the whole market when brand loyalty is non-existing. If we observe this demand function in equilibrium we see that the slope of the demand function is not affected

by g : $q_i(p_i = p_j \equiv p) = \frac{1}{2}(1 - p)$ Since the demand function based on Motta's (2004) not only fulfils the assumptions made by Bonanno and Vickers (1988) but also gives a more realistic effect of the degree of substitution, I will use this in the analysis below.

⁷³ Motta 2004: 351

5.1.3 Profits

With the demand function from Motta (2004) the retailers' profit will be:

$$(3) \pi_i(p_i, p_j) = (p_i - w_i) \frac{1}{2} \left(1 - p_i \left(1 + \frac{g}{2} \right) + \frac{g}{2} p_j \right) - F_i$$

The two-part tariff that the retailer pays the producer consists of w , which is the wholesale price paid for each unit, and F , which is the fixed franchise fee that the retailer pays the producer for the right to sell his product.

Bonanno and Vickers (1988) also make two assumptions about the profit functions. First, they assume stability for all w and for each firm:

$$\text{Assumption 3. } \frac{\partial \pi_i}{\partial p_i \partial p_i} + \frac{\partial \pi_i}{\partial p_j \partial p_i} < 0$$

And finally the retailers' prices are strategic complements:

$$\text{Assumption 4. } \frac{\partial \pi_i}{\partial p_j \partial p_i} > 0$$

5.1.4 Strategic Complements

The assumption that prices are strategic complements means that if one retailer increases his price, the other retailer will find it optimal to raise his price in response. The concept of strategic complements is analyzed by Bulow, Geanakoplos and Klemperer (1985). They discuss the difference between strategic complements and strategic substitutes. One should note that these terms have nothing to do with whether the *products* are complements or substitutes, but are with respect to prices. If a price increase of one product gives the other firm an incentive to increase his price, they are complements, and if a price increase by one firm gives the other an incentive to lower the price, they are substitutes. This can be well explained when observing the firms' reaction functions. Assume for simplicity that both firms are vertically integrated (whole-sale price equals zero and no franchise fee). When the firms maximize their profits on prices the first order conditions yield:

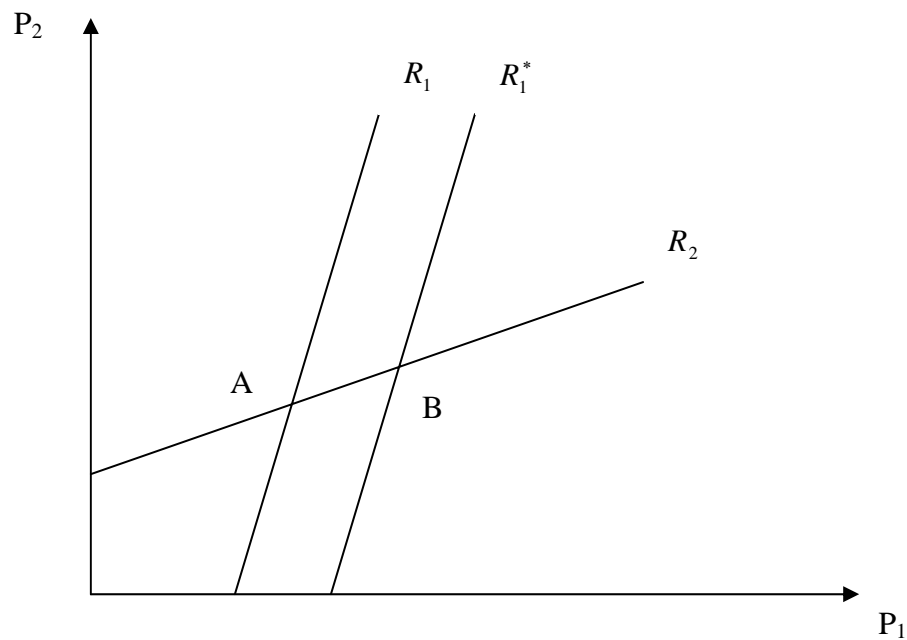
$$(4) \frac{\partial \pi_i(p_i, p_j)}{\partial p_i} = 0 \Rightarrow p_i(p_j) = \frac{2 + gp_j}{2(2 + g)}$$

If we for both firms, 1 and 2, rearrange these functions as the price for product 2 as a function of price of product 1 we get the reaction functions for both firms:

$$(5) R_2 : p_2 = \frac{2 + gp_1}{2(2 + g)}, R_1 : p_2 = \frac{2(2 + g)p_1 - 2}{g}$$

Both reaction functions have a positive slope but the reaction function of firm 1 is steeper than of firm 2. This is in accordance with the stability assumption; the response price increase from the other firm will not be as large as the initial price increase. This can also be shown geometrically:

Figure 5.1: Prices as strategic complements



If firm 1 for any reason was to raise its price, the reaction function will move to the right from R_1 to R_1^* . The equilibrium point will then move from A to B and hence firm 2 will find it optimal to charge a higher price. The price increase for product 2 will however not be as large as the increase in the price for product 1 because R_2 is not as steep as R_1 (Figure 5.1).

The fact that the prices in our model are strategic complements is due to the assumption of price competition. If the firms were competing in quantity instead of prices, the result would be opposite: The reaction functions would be downward sloping and a quantity increase from firm 1 would be met by a quantity reduction from firm 2, the quantities would be strategic substitutes.

5.1.5 Game Structure

The game will be structured as a two-stage game where the decisions are made simultaneously: First the producers set the wholesale prices. A decision of setting the wholesale price equal to zero will be interpreted as vertical integration⁷⁴. In the second stage the retailers determine the market prices observed by the consumers. The game is solved through backward induction: The producers anticipate the final prices the retailers will set and then derive the optimal wholesale prices based on that anticipation. An assumption required for doing this is that the producers have full knowledge of the demand and the prices the other players set.

I will also analyze the situation in a game theory setting and let the producers compare the profits which they would get as an integrated firm with the profits which evolve under vertical separation and decide on which form of distribution to use. In order to do this it is necessary to analyze an asymmetric situation where only one firm is vertically separated.

5.1.6 Discussion of Assumptions

The two assumptions about the demand seem very reasonable for the automotive industry: Cars are always substitutes to a certain degree. The reality is of course more complex than the model; we have small fuel-efficient cars, large sport utility vehicles and premium cars. The degree of substitution is relative small between an “upper-premium” make like Ferrari and a make with smaller, more inexpensive models like Fiat, but within each segment the degree of substitution is presumably significant. Within each segment demand for one brand will decrease when the price of the brand increases. If the prices of all the other brands

⁷⁴ Bonanno and Vickers 1988

where to increase while one producer kept the price of his brand constant, the demand for his brand would presumably increase.

The assumption of price competition is essential but appears to be realistic: Shortages in supply that may drive up prices and indicates quantity competition are very rare in automotive distribution. Except from maybe expensive premium sport cars the supply is almost unlimited and the overproduction is significant⁷⁵. The assumptions about the demand and prices lead to the result that prices are strategic complements. The assumptions of marginal costs being zero and the duopoly setting are just a simplification to simplify the calculations.

The order of the game is also realistic. The last decision made in the distribution chain is the retailers' determining the final consumer prices. If the producers can anticipate this, they would naturally use this information when determining the wholesale prices. The first decision being made is whether the producer should use an independent retailer or not, and choosing to sell directly to the consumers is analogue to setting a wholesale price equal to zero.

The assumption that the producers have full information of demand and prices is reasonable but of course not 100 percent realistic. Consumer prices are observable but may be blurred by factors as costumer discounts or additional price for extra equipments (e.g. mats). If a Norwegian importer can observe the wholesale prices retailers pay to other importers exactly is not clear. But nonetheless: assuming that the importers have no information must be seen as far more unrealistic than the assumption of full information.

The assumption that the producers have all the bargaining power and use two-part tariffs is important and we will analyze the game both with and without this assumption. It will also be discussed in more detail below. It should be noted that Bonanno and Vickers (1988) only analyze the situation when the producers use single-brand retailers and extract their profits with two-part tariffs. I will assume that there is no intra-brand competition unless specified otherwise.

⁷⁵ CECRA 2004: 16

5.2 Two-Part Tariff and Exclusive Dealing

In this part I will show the result from Bonanno and Vickers (1988). The producers have all the bargaining power and use two-part tariffs to extract the surplus from single-brand retailers with no intra-brand competition.

5.2.1 Stage 2: The Retailers

In the second stage when the retailers maximize their profit functions in equation (3) with respect to prices, rearranging the first-order conditions gives:

$$(6) \quad p_i^*(w_i, p_j) = \frac{2 + gp_j + (2 + g)w_i}{2(2 + g)}$$

The profit maximizing price retailer i sets depend positively on the wholesale price of producer i and the consumer price for product j . Since the producers have full information they will anticipate this price function. Solving the two first order conditions and inserting the prices into the demand function gives us the quantity as a function of the wholesale prices:

$$(7) \quad q_i(w_i, w_j) = \frac{6g^2 + 20g + 16 - w_i(16 + 24g + 10g^2 + g^3) + w_j(4g + 4g^2 + g^3)}{4(3g^2 + 16g + 16)}$$

This is the *perceived* demand observed by the producers when they both use independent retailers. This demand is clearly not similar to the demand observed by the retailers and the difference will be analyzed later in Chapter 5.2.3. The notation used to describe the Nash equilibrium prices is $p^* \equiv (p_i^*, p_j^*)$, $w^* \equiv (w_i^*, w_j^*)$.

5.2.2 Stage 1: The Producers

The producers have all the bargaining power and are able to extract the entire surplus from the retailers. The franchise fee will be the retailers' profit:

$$(8) \quad F_i \equiv \pi_i^R(p^*) = (p_i^*(w_i, w_j) - w_i)q_i(p^*)$$

With the demand function in equation (7) the producers' profit will be:

$$(9) \pi_i^P(w_i, w_j) = w_i q_i + F_i \Rightarrow p_i^*(w_i, w_j) q_i(w_i, w_j)$$

The producers will maximize their profits with respect to prices and rearranging the first order conditions yields:

$$(10) w_i(w_j) = \frac{(g^2 w_j + 2g w_j + 6g + 8)g^2}{4(4 + 4g + g^2)(8 + 8g + g^2)}$$

Equation (10) shows that for any $w_j \geq 0$ it is always optimal for producer i to set $w_i > 0$. For any non-negative wholesale price set by the competitor, it is always optimal to charge a positive wholesale price yourself. This is the result shown by Bonanno and Vickers (1988): It is always a dominant strategy, given the assumptions above, to choose vertical separation. Bonanno and Vickers (1988) show a more general proof of this incentive, which also holds for situations with several firms and is not limited to a specific demand function.

Solving the two first order conditions for the wholesale prices gives the symmetric equilibrium wholesale prices, consumer prices and the producers' profit:

$$(11) \begin{aligned} w_{i,j}^* &= \frac{2g^2}{g^3 + 14g^2 + 40g + 32}, p^{VS} \equiv p_{i,j}^*(w^*) = \frac{4(g+2)}{g^2 + 12g + 16} \\ \pi^{VS} = \pi^P(w^*) &= \frac{2(g^2 + 8g + 8)(2 + g)}{(g^2 + 12g + 16)^2} \end{aligned}$$

If we compare the integrated outcome in equation (2) with the separated outcome above we observe that both consumer prices and the profits have increased. It is hence a collusive solution for the producers to choose vertical separation. The competition between the producers is clearly dampened under vertical separation. The reason for this is that the demand perceived by the producers has changed.

5.2.3 Elasticity

The demand facing the producers when both are vertically integrated is found in equation (1), while the perceived demand under vertical separation is found in (7). These two demand

functions are clearly not identical. Observe first the elasticity in demand for the integrated firms evaluated at the equilibrium prices:

$$(12) \quad El_p q_i(p_i, p_j) \equiv \frac{p_i}{q_i(p_i, p_j)} \frac{\partial q_i(p_i, p_j)}{\partial p_i} \Rightarrow \frac{p_i(g+2)}{p_i(g+2) - gp_j - 2},$$

$$El_p q_i(p^*) = -1$$

We compare it to the elasticity derived from the demand function perceived by the vertically separated producers:

$$(13) \quad El_w q_i(w_i, w_j) \equiv \frac{w_i}{q_i(w_i, w_j)} \frac{\partial q_i(w_i, w_j)}{\partial w_i} \Rightarrow \frac{w_i(8g + g^2 + 8)}{w_i(8g + g^2 + 8) - 6g - 8 - w_j(2 - g)g},$$

$$El_w q_i(w^*) = \frac{-g^2}{3g^2 + 16g + 16}$$

It is clear that $|El_p q_i(p^*)| > |El_w q_i(w^*)|$. The perceived demand is more inelastic than the demand faced by integrated firms. An increase in the wholesale price by the producers will have lower effect on demand than an increase in the retailers' price. This effect is also observed by Rey and Stiglitz (1995). The producers may use independent retailers to reduce the competition between them due the seemingly more in-elastic demand.

5.2.4 Asymmetric Scenario

In order to analyze the game more thoroughly we need to observe an asymmetric outcome where only firm 1 chooses separation while firm 2 chooses integration. Using the solution of the first order conditions in equation (6) and setting the wholesale price to zero for firm 2 yields:

$$(14) \quad p_1(w_1) = \frac{8 + 2w_1(4 + 4g + g^2) + 6g}{3g^2 + 16 + 16g}, \quad p_2(w_1) = \frac{8 + w_1(2g + g^2) + 6g}{3g^2 + 16 + 16g}$$

Using this information firm 1 finds the optimal wholesale price (which is positive):

$$(15) \ w_1^* = \frac{g^2(3g+4)}{2(16+24g+10g^2+g^3)(2+g)}$$

This gives the profit for both the vertically integrated and the vertically separated firm:

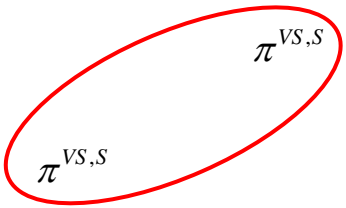
$$(16) \ \pi^{VS} = \frac{(3g+4)^2}{8(2+g)(g^2+8g+8)}, \pi^{VI} = \frac{(5g^2+20g+16)^2}{16(2+g)(g^2+8g+8)^2} \text{ Where } \pi^{VI} > \pi^{VS}$$

The profit for the integrated firm is always higher than the profit for the separated firm. However, there is no contradiction between this fact and that separation is the dominant strategy.

5.2.5 Dominant Strategy

If firm 2 knows that firm 1 is choosing vertical separation, he has the choice between the profit the vertically integrated firm gets in the asymmetric scenario in equation (16), $\pi^{VI,A}$, and that of a vertically separated firm in the symmetric scenario in equation (11), $\pi^{VS,S}$. It can be shown that $\pi^{VS,S} > \pi^{VI,A}$ for all $g > 0$. If firm 1 chooses separation, the optimal strategy for firm 2 is separation. If firm 1 chooses integration, firm 2 may decide on integration and get $\pi^{VI,S}$ or separation and receive $\pi^{VS,A}$. The expression for $\pi^{VI,S}$ is given in equation (2) while the expression for $\pi^{VS,A}$ is given in equation (16). It is easily shown that $\pi^{VS,A} > \pi^{VI,S}$. Firm 2 will choose separation if firm 1 chooses integration. No matter what strategy the competitor uses, it is a dominant strategy to sell through an independent retailer. This is formalized below with a game theory matrix where the Nash equilibrium is marked with a circle:

Figure 5.2: Strategies under exclusive dealing and two-part tariff

		<u>Firm 1</u>	
		Sep	Int
<u>Firm 2</u>	Sep	 $\pi^{VS,S}$	$\pi^{VI,A}$ $\pi^{VS,A}$
	Int	$\pi^{VS,A}$ $\pi^{VI,A}$	$\pi^{VI,S}$ $\pi^{VI,S}$

5.2.6 Prices

The incentive for the producers to use independent retailers is clear, but what are the effects on prices? Using similar notation as with the profits above we get:

$$(17) \quad p^{VI,S} = \frac{2}{g+4}, \quad p^{VS,S} = \frac{4(g+2)}{g^2+12g+16}, \quad p^{VI,A} = \frac{5g^2+20g+16}{2(g+2)(g^2+8g+8)}, \quad p^{VS,A} = \frac{3g+4}{g^2+8g+8}$$

Comparing these prices shows that $p^{VS,S} > p^{VS,A} > p^{VI,A} > p^{VI,S}$. The Nash-equilibrium in the game gives the highest prices and is therefore the worst scenario for the consumers. If we let the degree of substitution be zero, all prices will be 0.5. This is because the two producers then would be monopolists and charge monopoly prices.

It should be noted that the incentive for separation never disappears. If the producers add more and more whole-sellers between themselves and the retailers the profits will keep increasing. This is because the elasticity becomes more and more inelastic⁷⁶ and this will lead to higher consumer prices. An essential, but very unrealistic, assumption for this to happen is of course that it is costless to add a new layer.

⁷⁶ Rey and Stiglitz 1995

5.3 Two-Part Tariff and Multi-Brand Retailer

As mentioned above the European Commission changed the BER in order to make it easier for dealers to sell several brands (multi-branding). What effects may multi-branding have on the producers' incentive to sell through independent retailers and what are the consequences for the consumers? Will the effects of the multi-branding comply with Article 81(3) and give the "consumers a fair share of the resulting benefit", which in our model must mean lower prices? To analyze this we will let the two retailers in the model merge into a single firm. This is not done by Bonanno and Vickers (1988) but is analyzed by Lin (1990) with the simple demand function. We assume still that each of the producers may extract the retailer's entire profit which he makes selling their respective brands. The order of the game will be as above: In the first stage the producers set their optimal wholesale prices and in the second the retailers set the final prices. As before the game will be solved through backward induction.

5.3.1 *Franchise Fee from Monopolist Retailer*

Since the retailer now is a monopolist while the producers compete as a duopoly, it may seem a bit unintuitive that the producers manage to extract the entire surplus from the retailer. The analysis below is similar to the one by Lin (1990). In a critique of Lin's paper O'Brien and Shaffer (1993) argues that Lin misses the corner solutions in the multi-brand retailer's profit maximizing: The retailer may set the price of one product so high that the demand becomes zero. This threat makes the producers unable to fully extract the retailer's profit, and they end up charging a wholesale price of zero and just extracting the franchise fee.

This point is highly relevant, but I will for two reasons overlook the corner solution: The first being that the suppliers of automobiles according to the BER are allowed to set a maximum price to their dealers⁷⁷. This will prevent the dealer from raising the price until demand is zero. The second is that we will later observe the situation when the producers are unable to use any franchise fees, and it may be useful to observe the situation from the two extreme points of view: When the producers can extract all and nothing of the retailer's profit. If O'Brien and Shaffer's version is correct one should expect to find that multi-brand

⁷⁷EC No 1400/2002 Art 4.1.a

dealers have higher profits than single-brand dealers. Table *iii* and *v* in the appendix shows that this was not the case in 2002 or in 2004.

5.3.2 Stage 2: The Retailer

Assuming that the producers extract the whole surplus the profit function for the retailer becomes:

$$(18) \pi^R = (p_i - w_i)q_i(p_i, p_j) + (p_j - w_j)q_j(p_i, p_j) - F_i - F_j$$

Since the goods are substitutes and each demand function is affected by both prices, the first order conditions for the retailer will now be different:

$$(19) p_i^*(p_j, w_i, w_j) = \frac{w_i(2 + g) + 2gp_j - gw_j + 2}{2(2 + g)}$$

If we compare with equation (6) we see that the profit-maximizing price for product 1 does not only depend on the price of product 2 but also directly on the wholesale price for product 2. The wholesale prices are marginal costs for the retailer, and there is a direct effect of a higher marginal cost of product 2 on the price of product 1. The increase in the wholesale price of product 2 will obviously raise the price of product 2 which again will raise the price of product 1 since the prices still are strategic complements. An increase in the wholesale price has hence two effects on the others' final price: The direct negative effect and the indirect positive effect. When we solve the two first order conditions we get a surprising result for the equilibrium prices:

$$(20) p_i^* = \frac{w_i + 1}{2}, p_j^* = \frac{w_j + 1}{2}$$

We see that each price does only depend on its respective wholesale price. The fact that the products are substitutes is irrelevant for the multi-brand retailer: He charges the monopoly price of 0.5 for each product and adds half of any marginal cost, which is the whole-sale price, to this.

5.3.3 Stage 1: The Producers

Inserting the equilibrium prices in equation (20) into the demand function (1) gives us the demand perceived by the producers:

$$(21) q_i(p_i^*, p_j^*) = \frac{1}{4} \left(1 - w_i \left(1 - \frac{g}{2} \right) + w_j \frac{g}{2} \right)$$

This is exactly half the demand that is observed by the retailer. The franchise fee each producer extracts becomes $F_i = (p_i^* - w_i)q_i(p_i^*, p_j^*)$, where $F_i + F_j = \pi^R(p_i^*, p_j^*)$ holds and the producers together extract the retailer's entire profit. Using this information and equation (20) and (21) the producers profit function becomes:

$$(22) \pi_i(w_i, w_j) = w_i q_i(p_i^*, p_j^*) + F_i = p_i^* q_i(p_i^*, p_j^*)$$

Both producers maximize their profits with respect to prices and the first order condition gives:

$$(22) w_i(w_j) = \frac{g(w_j - 1)}{2(2 + g)}$$

The producers are now given incentives to charge a negative wholesale price. The whole-sale price for firm 1 will always be negative as long as firm 2's whole-sale price is smaller than 1. Since $p \geq w$ must hold and demand becomes negative when both retailers charge a price above 1, a wholesale price above 1 is ruled out. When we solve the first order conditions this becomes clear:

$$(23) w_i^* = w_j^* = \frac{-g}{g + 4}$$

The reason for this is as mentioned above: The multi-brand retailer acts as a monopolist and would according to equation (20) set a price of 0.5 if the whole-sale prices were zero. The monopolist outcome is not the optimal outcome for the two producers, and they therefore charge negative wholesale prices in order to lower the consumer prices. They can do this

since they are able to extract the retailer's profit with the franchise fees. The prices, and hence also the profits, becomes the same as under vertical integration with exclusive dealing:

$$(24) \quad p_{i,j}^*(w^*) = \frac{2}{4+g}, \pi_{i,j}^P = \frac{2+g}{(4+g)^2}$$

If the producers add an extra layer between themselves and the multi-brand retailer, which they can extract the total profits from; the solution becomes identical with the symmetric vertical separation scenario discussed above.

5.3.4 Conclusion

If we have a situation where the producers are selling through independent retailers and using two-part tariffs to extract the retailers' surplus, the effect of multi-branding will be lower consumer prices. The retailer is naturally not strengthened since he is assumed to make zero profit. Based on the model above, one must conclude that it was a correct decision by the Commission to strengthen the retailers' possibilities to sell different brands given that the producers use two-part tariffs efficiently.

The producers have nothing to gain from a pre-emptive vertical merger, since the profits under vertical integration are similar to selling through a multi-brand retailer. But it would clearly be in the producers' interests to avoid multi-branding among their retailers⁷⁸. The Chief Executive of the Norwegian Toyota importer, Tor I. Berge, stated: "Those (retailers) who want to do well in the future must try to focus on a single brand in the same store"⁷⁹. Multi-branding was acceptable if dedicated sales personnel for each brand sold the Toyota brand and the other brand at separate locations. 20 percent of the Nordic dealers feel that the importer is hindering them from selling an additional brand⁸⁰.

5.4 Franchise Fees

The results derived above are naturally a consequence of the assumptions that have been made. The assumption that the producers may extract the entire surplus from the retailers

⁷⁸ See Appendix table *vi* for an overview of multi-branding

⁷⁹ Bilbransjen 2006/9: 23 (Translated from Norwegian)

⁸⁰ Exido 2005

may however seem a bit unrealistic. The suppliers are allowed to use non-linear pricing on the retailers in forms of discounts of quantity or quality criteria. According to Eirik Høyen from NBF⁸¹ and John Fiskvik a classic fixed franchise fee are not used in contracts between suppliers and dealers in the Norwegian distribution, but discounts based on quality or quantity criteria are common. This is also normally the case in Europe⁸². Quality discounts may be a form of hidden franchise fee: If a dealer must buy supplementary products or services from the supplier in order to get lower prices, these products or services can be observed as lump-sum fees. An example may be that a supplier requires the dealer to buy a set of expensive leather sofas from him in order to get a discount. The profit the supplier gets on these coaches is a lump-sum fee paid by the retailer, and hence a hidden franchise fee. The BER gives the suppliers rights to enforce general quality criteria on the dealers, and these criteria may be designed in a way that allows the supplier to extract lump-sum fees from the retailer. Quantity discounts are a form of non-linear pricing, and may also be used to extract profit from the dealers. With quantity discounts the average price of the product decreases, which is the same effect as with franchise fees.

Data from the period 2002-2005⁸³ show that the Norwegian importers clearly have a higher margin than the dealers. The dealers had a margin before taxes varying from 0.7% to 2.8% with an average of 1.5%, while the importers' margin was much more stable varying between 3.7% and 3.9% and an average of 3.8%. These numbers show that, even though the importers always have a higher margin they are not extracting the entire surplus of the retailers. It may therefore be interesting to analyze the model above at the other extreme; when franchise fees are not used.

5.5 Linear Pricing and Exclusive Dealing

The idea is to see whether the results achieved above change if we assume that the producers can only use linear pricing towards the retailers. The focus will still be on the producers' incentives. The integrated outcome will of course be identical to the one above.

⁸¹ Norwegian Car Retailer Federation

⁸² London Economics 2006: 80

⁸³ Fiskvik 2006

5.5.1 Symmetric Scenario

In the symmetric separation scenario the first order conditions in prices for the retailer will be identical since these do not depend on the fixed fee. Solving the first order condition yields:

$$(25) \quad p_i^*(w_i, w_j) = \frac{8 + gw_j(2 + g) + 2w_i(4 + 4g + g^2) + 6g}{3g^2 + 16 + 16g}$$

The producers' profit without the franchise fee is: $\pi_i^P(w_i, w_j) = w_i q_i(p^*)$ When the producers maximize their profits, solving the two first order conditions gives us the Nash equilibrium wholesale prices:

$$(26) \quad w_{i,j}^* = \frac{2(3g + 4)}{g^2 + 14g + 16}$$

These wholesale prices are clearly higher than those in the scenario with franchise fees in equation (11). Since the producers are not able to extract any profit from the retailers, they must naturally charge a higher wholesale price to maximize their profit. These higher wholesale prices then lead to higher consumer prices:

$$(27) \quad p_{i,j}^*(w^*) = \frac{8(g^2 + 6g + 6)}{(g + 4)(g^2 + 14g + 16)}$$

The equilibrium profits for the retailers and the producers will become:

$$(28) \quad \begin{aligned} \pi^R(p_{i,j}^*(w^*)) &= \frac{(10g^2 + 16 + 24g + g^3)(g^2 + 8g + 8)}{(g + 4)^2(g^2 + 14g + 16)^2} \\ \pi^P(w^*) &= \frac{3g^4 + 112g^2 + 34g^3 + 144g + 64}{(g + 4)(g^2 + 14g + 16)^2} \end{aligned}$$

Where $\pi^P(w^*) > \pi^R(p_{i,j}^*(w^*))$ for all $g > 0$. The producers have higher profits than the retailers no matter the degree of substitution, which is in accordance with the data⁸⁴. The

⁸⁴ See Chapter 5.4

producers' profit functions when they are vertically separated are not decreasing with the degree of substitution, but reaches a maximum when $g = g^* \equiv 2 + 2\sqrt{3}$. If we compare the profits in the scenario with integrated firms, with the producers' profits in equation (28) using this degree of substitution we see that separation may be a cooperative solution:

$$(29) \pi^{INT,S}(g^*) = \frac{1}{12} \approx 0.083, \pi^{SEP,S}(g^*) = \frac{2(97 + 56\sqrt{3})}{9(3 + \sqrt{3})(5 + 3\sqrt{3})^2} \approx 0.088$$

The inequality $\pi^{SEP,S} > \pi^{INT,S}$ holds however not for all values of g , but only when g is larger than about 4.85. It is however not unrealistic that if the producers used independent retailers they would agree on the degree of substitution which gave them the highest profit.

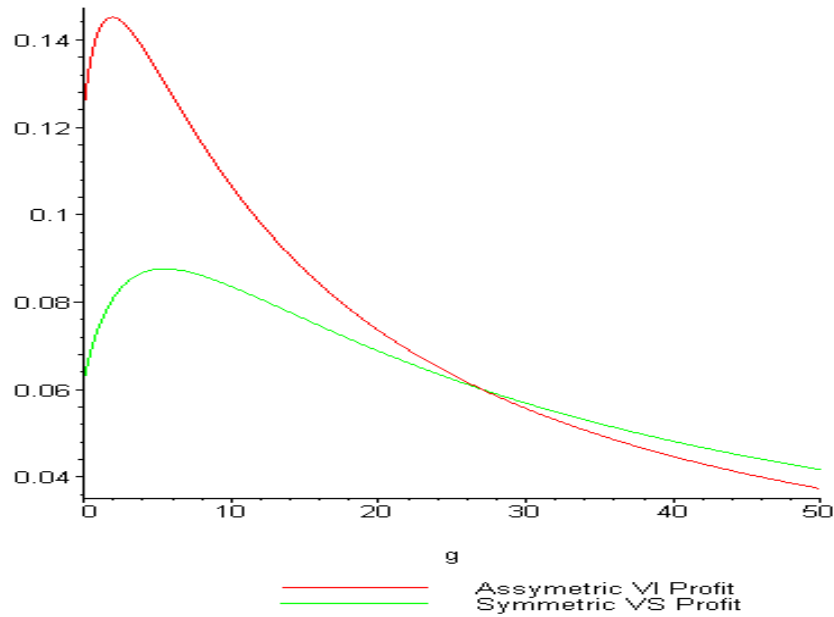
5.5.2 Asymmetric Scenario

If we for now assume that $g \geq g^*$ and therefore $\pi^{SEP,S} > \pi^{INT,S}$ it is interesting to see whether this is a stable equilibrium. In order to do this we need to analyze the asymmetric scenario. Using the same procedure as above the profits in the asymmetric scenario becomes:

$$(30) \begin{aligned} \pi^{INT,A} &= \frac{(3g^3 + 24g^2 + 52g + 32)(3g^2 + 18g + 16)}{4(g+4)^2(8g + g^2 + 8)^2} \\ \pi^{SEP,A} &= \frac{(3g+4)(g+2)}{4(g+4)(8g + g^2 + 8)} \end{aligned}$$

Using these profits we can now examine whether the cooperative solution above is equilibrium for the producers. In order for the symmetric separation scenario to be a stable equilibrium, deviation from this must not be profitable. If firm 1 knows that firm 2 is choosing separation, it must not be profitable for him to deviate and choose integration, hence $\pi^{SEP,S} > \pi^{INT,A}$ must hold. This is however the case only for very large values of g well above g^* :

Figure 5.3⁸⁵: Separation Strategy under linear pricing (Degree of Substitution on the abscissa and profit on the ordinate)



At the point where the two profit functions cross ($g^{**} \approx 26.95$) the two products are very close substitutes. If firm 1 knows that firm 2 is choosing integration, it is always profitable for him to choose integration since $\pi^{VI,S} > \pi^{VS,A}$ always holds. As in the case with franchise fees this can be formalized in a game theory matrix:

Figure 5.4: Strategies under linear pricing and exclusive dealing.

		<u>Firm 1</u>	
		Sep	Int
<u>Firm 2</u>	Sep	<div style="border: 1px dashed red; border-radius: 50%; padding: 10px; display: inline-block;"> $\pi^{VS,S}$ </div>	$\pi^{VI,A}$
	Int	$\pi^{VI,A}$	<div style="border: 1px solid red; border-radius: 50%; padding: 10px; display: inline-block;"> $\pi^{VI,S}$ </div>

⁸⁵ Graphs plotted using Maple 9.5

The symmetric separation equilibrium, marked with the dotted circle, is only a Nash equilibrium if $g \geq g^{**}$ but it is always better for the producers than the symmetric integration equilibrium when $g \geq 4.85$.

Vertical separation may be in the producers' common interest even without franchise fees, but it is never a dominant strategy. When the competitor chooses vertical integration, choosing integration is always the dominant strategy.

5.5.3 Prices

The consumer prices that evolve in each scenario become:

$$(31) \quad \begin{aligned} p^{VI,S} &= \frac{2}{g+4}, p^{VS,S} = \frac{8(g^2 + 6g + 6)}{(g+4)(g^2 + 14g + 16)}, \\ p^{VI,A} &= \frac{3g^2 + 18g + 16}{(g+4)(g^2 + 8g + 8)}, p^{VS,A} = \frac{4(g^2 + 6g + 6)}{(g+4)(8 + 8g + g^2)} \end{aligned}$$

We get the same order as in the scenario with franchise fees $p^{VS,S} > p^{VS,A} > p^{VI,A} > p^{VI,S}$ but all prices (except of course the symmetric integration price which is the same) are higher than in the scenario with franchise fees. The explanation behind this is that double marginalization does not appear when the producers are able to extract the whole of the retailers' profits.

A fascinating result is that the symmetric separation equilibrium without franchise fees can be better than the scenario with franchise fees⁸⁶. When the degree of substitution is large enough, $g \approx 8.71$, the producers are actually better off when using independent retailers if they cannot charge a two-part tariff from the retailers.

5.6 Linear Pricing and Multi-Brand Retailer

What effects will a merger between the two retailers have in the model without franchise fees? The first order conditions for the retailer will be as in equation (19) and the equilibrium

⁸⁶Also observed by Rey and Stiglitz 1995

prices will be as in (20) since the absence of franchise fees does not change the retailers' profit maximizing. The profits for the two producers will change, and it will no longer be optimal to charge a negative wholesale price:

$$(31) \quad \begin{aligned} \pi_i^P &= w_i q_i(w_i, w_j) = \frac{w_i(2 + gw_j - 2w_i - gw_i)}{8} \\ w_{i,j}^* &= \frac{2}{g+4}, p_{i,j}^*(w^*) = \frac{g+6}{2(g+4)} \end{aligned}$$

The wholesale prices become equal to the prices under vertical integration. These wholesale prices are divided by two and added to the consumer prices (see equation (20)). The result is a clear case of double marginalization. Using these wholesale prices we are able to determine the equilibrium profits for both the retailer and the producers:

$$(32) \quad \pi^R(p^*(w^*)) = \frac{(g+2)^2}{4(g+4)^2}, \pi^P(w^*) = \frac{g+2}{2(g+4)^2}$$

The producers' profit is clearly lower than the profit of the integrated firm in equation (2). If the producers were to add an extra costless layer between themselves and the retailer, their profit would become the same in the symmetric separation scenario in equation (28).

5.6.1 Conclusion

We observed in the section above that vertical separation might be an equilibrium when the producers use linear pricing. A situation with multi-branding is clearly worse for the producers than with exclusive dealing and vertical integration may very likely be a pre-emptive strategy for the producers to avoid multi-branding. The consumer prices under multi-branding are higher than the prices under vertical separation for all values of g above zero. Because of the absence of intra-brand competition in our model the multi-brand retailer acts as a monopolist and this pushes the prices up. Colangelo (1995) analyses a similar scenario with differentiated goods and finds that vertical mergers often are more profitable than horizontal and hence dominant outcomes.

Based on the analysis of the model without franchise fees we may conclude that multi-branding will either lead to pre-emptive vertical integration or to higher consumer prices. This result is not in accordance with the motivation behind the new BER: The two main objectives, strengthening the dealers and lowering prices, does not come hand in hand. Pre-emptive merging would weaken the dealers, while a strong independent dealer would charge higher prices.

5.7 Exclusive Territories

So far we have assumed that there is no intra-brand competition in our model. If we have intra-brand competition a discussion of vertical integration of course becomes meaningless: For intra-brand competitions to exist at least two different firms have to sell the brand in the same area, and if the producer owns one of them the other must be independent. After 1st of October 2005 retailers within a selective distribution system are free to open new outlets wherever they may want inside the European Economic Area⁸⁷.

5.7.1 *Bertrand Competition*

The obvious consequence of this will be that the degree of intra-brand competition increases. Assuming price competition and no collusive outcome, the effect of going from zero to full intra-brand competition in our model is a dramatic one: Bertrand competition. The competitive Nash equilibrium in Bertrand competition is that all retailers charge their marginal cost. Since the retailer who sells the product at the lowest price will get all the demand, the retailers will undercut each other until price equals marginal cost. The retailers' marginal cost in our model is the wholesale price they pay the producers.

The Bertrand competition may be softened by several factors: The consumers will to some degree still have search cost between the different retailers. Cars are very complex products and dealers may use this fact to differentiate the cars within the same brand. If two retailers selling the same make are located in the same territory, they may offer different versions of the same specific model. One of the retailers may include extra equipment and services that the other does not offer. The cars will then be differentiated. Due to the wide variety of

⁸⁷ EC No 1400/2002 Art 5.2.b

different engines, extra equipment and services associated with cars, comparing real prices may be difficult for the consumers.

5.7.2 *Effect for the Producers*

When the retailers charge $p_i \equiv w_i$ the effect on the elasticity of demand which vertical separation gave in the exclusive dealing will disappear. The producers' profit with intra-brand competition will equal that of the case of vertical integration⁸⁸, irrespective of whether the retailers sell both brands or not. If the producers were to add an extra layer between themselves and the retailers they could achieve the altered elasticity-effect, but this extra layer would of course not be costless.

5.7.3 *Effect for the Retailers*

For the retailers the effect of increased intra-brand competition will be more dramatic and have two clear consequences:

- Cost inefficient dealers will be driven out of the market

In the real world marginal costs are not identical between firms, and with Bertrand competition the retailer with the lowest marginal cost will get the whole market. The retailers who are not cost efficient and hence have higher marginal costs will be unable to match the market prices and will be driven out of the market

- Dealers will have incentives to grow

Dealers may now freely open a new sales outlet. If there are economies of scale in automotive retailing, opening new outlets will reduce the marginal cost. Economies of scale are very likely to exist, and one should expect dealers who are able to expand to do so. The ability to grow naturally depends on financial strength. It is therefore likely that we will see a concentration in the dealer market.

5.8 Remark on the Role of Importers

About half of the Norwegian importers and two of the three largest are not owned by any car manufacturer: Harald A. Møller is a single-brand importer, while Bertel O. Steen imports several different brands. Analyzing the role of the importers within the model framework in this chapter would be very interesting, but proved to be too complex for this thesis. A

⁸⁸ Rey and Stiglitz 1995

hypothetical dealer selling both Citroën and Peugeot would be regarded as a multi-brand dealer by the two importers, even though they are from the same manufacturer.

If we disregard the retailers and only focus on the relationship between the manufacturers and importers, the model above may be useful. We can interpret the retailers in the model as being the importers selling to customers (i.e. the dealers), and analyze the setting as being the relationship between the car manufacturers and their importers. The ability for a producer to use a two-part tariff towards an importer is presumably lower than for an importer towards a dealer. While Volkswagen AG had a profit margin before taxes of 1.71 percent in 2004⁸⁹, their importer Møller managed to achieve 6.01 percent⁹⁰. This was however a record year for Møller and only a very small fraction of Volkswagen's sales are in Norway.

If we assume that there is no use of franchise fees between manufacturers and importers in the Norwegian market the producer-importer relationship may be similar the situation in chapter 5.5 and 5.6. Since about half the Norwegian importers are manufacturer owned and several of the independent are multi-brand, the model indicates that it is profitable for the manufacturers to integrate vertically with the independent importers in Norway. If this in reality is a dominant strategy will of course be affected by other factors as uncertainty about demand⁹¹ and the manufacturers additional fixed cost of opening an own importer.

⁸⁹ London Economics 2006: 72

⁹⁰ Møller 2004

⁹¹ See Chapter 4.2.4

6. Conclusion

How will the Norwegian automotive distribution market develop in the future? We have seen that multi-branding does not directly affect whether vertical integration is the dominant strategy or not. The possibility of using two-part tariffs for the suppliers is the important factor determining this. In a setting where the producers only can use linear pricing, vertical integration is always a dominant strategy. It may however be an indirect effect: The emergence of multi-branding may make the bargaining power of the retailer stronger. Negotiating with a large multi-brand dealer is not the same as with a single-brand single-outlet dealer for the suppliers. Multi-branding may switch the bargaining power between the up-stream and down-stream firms and hence the possibility for the suppliers to use two-part tariffs effectively.

If multi-branding makes it impossible for the suppliers to extract their dealers' surplus, then vertical integration may be a pre-emptive strategy. There is however no signs of multi-branding stores having higher profits than single-brand stores as table *iii* and *v* in the appendix shows. It is two possible explanations for this:

- There are no economies of scope in selling several brands
- Multi-branding does not affect the possibility for suppliers to use two-part tariffs effectively

Double marginalization is not an issue when the suppliers may use two-part tariffs effectively. Strong dealers may hence lead to higher prices if the bargaining power switch and double marginalization becomes present.

The consequence of EC No 1400/2002 Art 5.2.b is clear: High intra-brand price competition. This will naturally have the strongest effect for the dealers. It will affect the suppliers when two-part tariffs are used, since the profit they extract from the retailers will diminish. With linear pricing the increased intra-brand competition will reduce double marginalization and lead to higher up-stream profits and lower prices to the consumers.

Non-exclusive dealing may also switch the bargaining power: The dealers will grow when exploiting economies of scale and in a combination with multi-branding we may observe a

dramatic concentration of the down-stream market. In a scenario with a few nationwide multi-brand dealer chains the bargaining power would be very likely to be affected. Prodi (2002) said the Commission wanted to safeguard the interests of “*dealers in growing stronger and more competitive*”. If he desired a dramatic concentration of the dealer segment is unknown, but this may very well be the effect.

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Appendix

All tables in the appendix are based on data received from Bilforlaget. The data consisted of all retailers who had reported their accountings to the Norwegian authority (Brønnøysundsregisteret) in the years 2002 and 2004. The data consisted of variables such as: name, makes, state (fylke), turnover and profits. In addition I added the brand variable to the data. The brand variable is defined as the number of different importers the retailer is selling makes for.

i. Averages key figures for Norwegian retailers in 2002 and 2004

<i>Year</i>	<i>Makes</i>	<i>Brands</i>	<i>Turnover</i>	<i>Profit</i>
2002	1,81	1,24	64 365	1,48 %
2004	1,72	1,28	84 980	2,95 %
Relative change	-4,94 %	3,08 %	32,03 %	99,42 %

ii. Number of makes sold by retailers in 2002

<i>Year 2002</i>	<i>1 make</i>	<i>2 makes</i>	<i>3 makes</i>	<i>4+ makes</i>	<i>Sum</i>
Number of retailers	334	254	87	50	725
Percentage	46,07 %	35,03 %	12,00 %	6,90 %	100,00 %
Average turnover	59 040	63 668	81 268	74 060	64 365
Average profit margin	1,43 %	1,85 %	1,52 %	-0,13 %	1,48 %

iii. Number of brands sold by retailers in 2002

<i>Year 2002</i>	<i>1 brand</i>	<i>2 brands</i>	<i>3+ brands</i>	<i>Sum</i>
Number of retailers	572	135	15	722
Percentage	79,22 %	18,70 %	2,08 %	100,00 %
Average turnover	65 727	59 232	59 559	64 365
Average profit margin	1,59 %	1,17 %	0,31 %	1,48 %

iv. Number of makes sold by retailers in 2004

<i>Year 2004</i>	<i>1 make</i>	<i>2 makes</i>	<i>3 makes</i>	<i>4+ makes</i>	<i>Sum</i>
Number of retailers	337	240	77	29	683
Percentage	49,34 %	35,14 %	11,27 %	4,25 %	100,00 %
Average turnover	67 991	91 978	118 614	135 175	84 980
Average profit margin	3,35 %	2,73 %	2,30 %	1,92 %	2,95 %

v. Number of brands sold by retailers in 2004

<i>Year 2004</i>	<i>1 brand</i>	<i>2 brands</i>	<i>3+ brands</i>	<i>Sum</i>
Number of retailers	525	131	27	683
Percentage	76,87 %	19,18 %	3,95 %	100,00 %
Average turnover	86 429	74 241	108 899	84 980
Average profit margin	3,14 %	2,47 %	1,57 %	2,95 %

vi. Number of retailers for the 5 main importers in 2002 and 2004

Importers	Year 2002		Year 2004	
	Dealers	Share multi-brand	Dealers	Share multi-brand
Toyota Norge	59	6,78 %	60	3,33 %
Bertel O. Steen	121	31,40 %	120	26,67 %
Harald A. Møller	98	21,43 %	86	12,79 %
General Motors Norge	91	40,66 %	87	51,72 %
Volvo Personbiler Norge	25	0,00 %	26	23,08 %